

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☐ DRILL ☐ REENTER 1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other 1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. [326125]
2. Name of Operator [373910]		9. API Well No. 30-025-49867
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory [97779] XXXXXXXXXXXXXX
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- | | |
|---|---|
| 1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
 Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NGMP Rec 03/08/2022

SL

(Continued on page 2)



Approval Date: 03/07/2022

KZ
03/16/2022

*(Instructions on page 2)

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

0. SHL: TR B / 20 FNL / 1875 FEL / TWSP: 26S / RANGE: 35E / SECTION: 2 / LAT: 32.079514 / LONG: -103.335838 (TVD: 0 feet, MD: 0 feet)

PPP: NWNE / 0 FNL / 1876 FEL / TWSP: 26S / RANGE: 35E / SECTION: 11 / LAT: 32.065052 / LONG: -103.335831 (TVD: 8681 feet, MD: 13500 feet)

PPP: SWSE / 2654 FNL / 1887 FEL / TWSP: 26S / RANGE: 35E / SECTION: 2 / LAT: 32.072274 / LONG: -103.335836 (TVD: 8681 feet, MD: 10900 feet)

PPP: TR B / 753 FNL / 1879 FEL / TWSP: 26S / RANGE: 35E / SECTION: 2 / LAT: 32.077499 / LONG: -103.335838 (TVD: 8681 feet, MD: 9017 feet)

BHL: TR O / 150 FSL / 1877 FEL / TWSP: 26S / RANGE: 35E / SECTION: 11 / LAT: 32.050938 / LONG: -103.335824 (TVD: 8681 feet, MD: 18681 feet)

BLM Point of Contact

Name: TENILLE ORTIZ

Title: Legal Instruments Examiner

Phone: (575) 234-2224

Email: tortiz@blm.gov

CONFIDENTIAL

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-49867		² Pool Code 97779		³ Pool Name WC-025 G05 S253523H; DELAWARE	
⁴ Property Code 326125		⁵ Property Name TATANKA FED COM			⁶ Well Number 103H
⁷ OGRID No. 373910		⁸ Operator Name FRANKLIN MOUNTAIN ENERGY LLC			⁹ Elevation 3119.0'

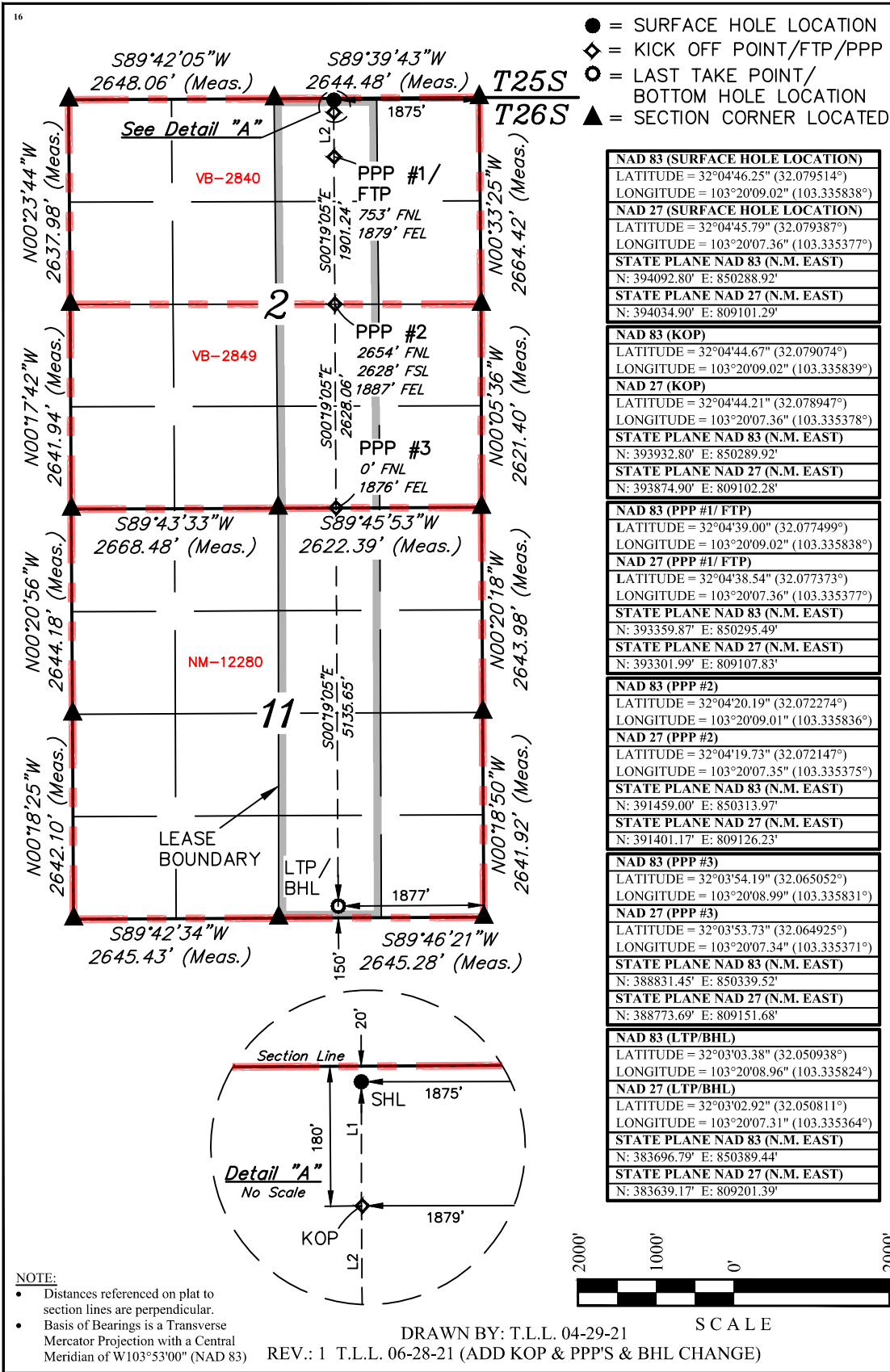
¹⁰ Surface Location

UL or lot no. B	Section 2	Township 26S	Range 35E	Lot Idn	Feet from the 20	North/South line NORTH	Feet from the 1875	East/West line EAST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. O	Section 11	Township 26S	Range 35E	Lot Idn	Feet from the 150	North/South line SOUTH	Feet from the 1877	East/West line EAST	County LEA
¹² Dedicated Acres 320		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Shelly Albrecht* Date: 7/6/2021

Printed Name: Shelly Albrecht

E-mail Address: salbrecht@fmellc.com

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S00°07'04"E	160.03'
L2	S00°19'05"E	573.04'

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

APRIL 19, 2021

Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23/82
06-29-21
PROFESSIONAL SURVEYOR

Certificate Number:

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Electronically
Via E-permitting

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description

Effective May 25, 2021

I. Operator: Franklin Mountain Energy, LLC **OGRID:** 373910 **Date:** 03/_08/_2022

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
See Attached Well List						

IV. Central Delivery Point Name: Tatanka North CTB: (f#) TBD [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
See Attached Well List						

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

If Operator checks this box, Operator will select one of the following:

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

Section 4 - Notices

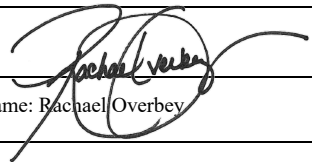
1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: 
Printed Name: Rachael Overbey
Title: Director Operations Planning & Regulatory
E-mail Address: roverbey@fmelle.com
Date: 3/8/2022
Phone: 720-414-7868
OIL CONSERVATION DIVISION (Only applicable when submitted as a standalone form)
Approved By:
Title:
Approval Date:
Conditions of Approval:

NATURAL GAS MANAGEMENT PLAN

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API 14 Digit	ULSTR	Surface Location FTG	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Tatanka Fed Com 101H	TBD	C-2-26S-35E	20 FNL 1347 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 102H	TBD	C-2-26S-35E	20 FNL 1372 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 103H	TBD 30-025-49867	B-2-26S-35E	20 FNL 1875 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 104H	TBD	B-2-26S-35E	20 FNL 1850 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 501H	TBD	C-2-26S-35E	20 FNL 1397 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 502H	TBD	C-2-26S-35E	20 FNL 1422 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 503H	TBD	B-2-26S-35E	20 FNL 1925 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 504H	TBD	B-2-26S-35E	20 FNL 1900 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 601H	TBD	D-2-26S-35E	10 FNL 545 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 602H	TBD	N-35-25S-35E	998 FSL 1807 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 603H	TBD	N-35-25S-35E	998 FSL 1907 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 604H	TBD	A-2-26S-35E	20 FNL 885 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 701H	TBD	D-2-26S-35E	10 FNL 620 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 702H	TBD	N-35-25S-35E	998 FSL 1782 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 703H	TBD	N-35-25S-35E	998 FSL 1857 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 704H	TBD	A-2-26S-35E	20 FNL 935 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 705H	TBD	A-2-26S-35E	20 FNL 860 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 801H	TBD	D-2-26S-35E	10 FNL 570 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 802H	TBD	D-2-26S-35E	10 FNL 595 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 803H	TBD	N-35-25S-35E	998 FSL 1832 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 804H	TBD	N-35-25S-35E	998 FSL 1882 FWL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 805H	TBD	A-2-26S-35E	20 FNL 910 FEL	800 +/-	700 +/-	600 +/-
Tatanka Fed Com 806H	TBD	A-2-26S-35E	20 FNL 835 FEL	800 +/-	700 +/-	600 +/-

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API 14 Digit	Spud Date (Batch Drilling)	TD Reached Date	Completion Commencement Date	Initial Flowback Date	First Production Date
Tatanka Fed Com 101H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 102H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 103H	TBD 30-025-49867	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 104H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 501H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 502H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 503H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 504H	TBD	TBD	TBD	TBD	TBD	TBD
Tatanka Fed Com 601H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 602H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 603H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 604H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 701H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 702H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 703H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 704H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 705H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 801H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 802H	TBD	7/15/2022	12/15/2022	2/28/2023	3/28/2023	4/2/2023
Tatanka Fed Com 803H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 804H	TBD	6/15/2022	12/15/2022	1/30/2023	3/10/2023	3/13/2023
Tatanka Fed Com 805H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023
Tatanka Fed Com 806H	TBD	7/1/2022	12/15/2022	1/30/2023	3/1/2023	3/4/2023



Natural Gas Management Plan

Items VI-VIII

VI. Separation Equipment: Attach a complete description of how Operator will size separation equipment to optimize gas capture.

- Data from surrounding wells is used to generate type curves which provides the basis for expected gas rates during initial production, peak production and then the natural decline.
- Separation equipment will be sized to provide adequate separation for peak production.
- Facility design includes multiple stages of separation to minimize gas waste. Wells flow through a high pressure 2-phase separator to remove bulk gas, liquid from the 2-phase separator is sent to a 3-phase separator where additional gas is separated. Gas from the 2 Phase and 3 Phase separators are then sent through a gas scrubber before being route to treatment and/or sales. As production declines the 2-phase separator may be removed.
- Industry standard sizing calculations are used for gas-liquid separation and liquid-liquid separation.

VII. Operational Practices: Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F 19.15.27.8 NMAC.

- Drilling, completion and production setup is designed to minimize the waste of natural gas and to flare instead of vent.
- *Drilling Operations:*
 - Natural gas encountered will be flared instead of vented unless there is an equipment malfunction and/or to avoid risking safety or the environment.
 - Flares will be properly sized and placed at least 100' from the nearest surface hole on the pad.
- *Completions/Recompletions Operations:*
 - Flowback operations will not commence until connected to a properly sized gas gathering system.
 - During initial flowback wells are routed to the separation equipment as soon as technically feasible to minimize gas waste.
 - During separation flowback wells are routed to the separation equipment to minimize gas waste.
 - Gas sales is maximized. Gas will be flared instead of vented during an emergency or malfunction to avoid posing a risk to operations or personnel safety.
 - Flares are properly sized with a continuous pilot.
- *Production Operations:*
 - Gas sales will be maximized. Gas will be flared instead of vented during an emergency or malfunction to avoid posing a risk to operations or personnel safety.
 - After a well is stabilized from liquid unloading, the well will be turned back into the collection system.
- *Performance Standards:*
 - The facility will be designed to handle peak production rates and pressures.
 - All tanks will have automatic gauging equipment.
 - Flares will be designed to ensure proper combustion and will have continuous pilots. Flares will be located 100' from nearest surface hole on the pad and storage tanks.
 - Weekly AVOs will be performed, and any leaking thief hatches will be cleaned and properly re-sealed.



- **Measurement and Calibration:**
 - All volume that is flared and vented that is not measured will be estimated.
 - When metering is not practical due to low pressure/rate, all vented or flared volumes will be estimated.
 - Measurement will conform to industry standards. Measurement will not be bypassed except for purposes of inspection or calibration.

VIII. Best Management Practices: Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

- Venting will be minimized during active and planned maintenance.
- Systems and equipment requiring maintenance will be isolated and blown down to sales and then flare before any remaining gas is vented in an effort to minimize waste and venting.
- Downhole maintenance will use best management practices to minimize vent.



Tatanka Fed Com 103H

1. Geologic name of surface location: Permian
2. Estimated tops of important geological markers:

Formations	PROG SS	PROG TVD	Picked TVD	delta	Potential/Issues
Cenozoic Alluvium (surface)	3,117'	30'	30'	0	Sand/Gravels/unconsolidated
Rustler	2,359'	788'			Carbonates
Salado	1,942'	1,205'			Salt, Carbonate & Clastics
Base Salt	-440'	3,587'			Shaley Carbonate & Shale
Lamar	-1,987'	5,134'			Carbonate & Clastics
Bell Canyon	-2,074'	5,221'			Sandstone - oil/gas/water
Cherry Canyon	-2,936'	6,083'			Sandstone - oil/gas/water
Brushy Canyon	-4,366'	7,513'			Sand/carb/shales - oil/gas/water
Leonard	-5,464'	8,611'			Sand/carb/shales - oil/gas/water
HZ Target at Landing	-5,534'	8,681'			Sand/carb/shales - oil/gas/water
Bone Spring Lime	-5,678'	8,825'			Shale/Carbonates - oil/gas
Avalon	-5,718'	8,865'			Shale/Carbonates - oil/gas

3. Estimated depth of anticipated fresh water, oil or gas:

Upper Permian Sands	0- 400'	Fresh Water
Delaware Sands	5,221'	Oil
Leonard	8,611'	Oil
Avalon	8,865'	Oil

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Surface freshwater sands will be protected by setting 13 3/8" casing at 1,300' and circulating cement back to surface.

4. Casing Program:

All casing strings will be run new. Safety factors calculated assuming the well is vertical.

Casing string	Weight	Grade	Burst	Collapse	Tension	Conn	Length	API design factor			
								Burst	Collapse	Tension	Coupling
Surface 13 3/8"	54.5	J-55	2730	1130	853	BTC 909	1300	1.18	1.67	4.99	5.32
Intermediate 9 5/8"	40	HCL-80	7430	4230	916	BTC 1042	5170	1.77	1.75	2.99	3.40
Intermediate 7 5/8"	29.7	HCP-110	8280	7150	827	Stinger 564	9017	1.47	1.69	2.25	1.53
Long string 5 1/2"	23	P-110	14520	14520	729	Eagle 606 TVD	18681 8681	1.32	1.66	1.38	1.14 2.02

7 5/8" casing will be set at 9,017' MD/8,681' TVD at 90° Inc. Stress calculations on 5 1/2" casing performed assuming 18,681' depth. Actual max vertical depth is 8,681'.



Cementing Program:

Cementing Stage tool can be placed in the 1st Intermediate string as a contingency to ensure required TOC to surface.

String Type	Hole Size	Casing Size	Setting Depth	Sacks	Type of cmt	Lead Yield ft ³ /sk	Water gal/sk	TOC ft	Sacks	Type of cmt	Tail Yield ft ³ /sk	Water gal/sk	TOC	Excess
Surf	17.5	13.375	1300	795	Extenda Cem, 12.8 ppg Class C, 3lb/sk Kol-Seal	1.747	9.06	0	334	Tail, 14.8 ppg, Class C,	1.349	6.51	1000	100%
					0.125pps Poly-E-Flake					1% CaCl ₂ , 0.125pps Celo-Flake				
Int1	12.25	9.625	5170	1512	Lead, 12.8 ppg, Class C 5% Salt,	1.79	9.74	0	154	Tail, 14.8 ppg, Class C,	1.33	6.37	4870	100%
					0.125 pps Poly-E-Flake, 3lb/sk Kol-Seal					0.1% HR 800 .125 pps Poly-E-Flake				
Int2	8.75	7.625	9017	205	Lite Fill, 9.5 ppg, Class C 3lb/sk	2.13	5.97	4170	94	NeoCem 14.8 ppg, Class C	1.33	6.29	8017	50%
					Bridgemaker Gel, 5% Salt, 5pps LCM, 0.25pps Cello-Flake					0.25 pps Cello-Flake, 2% CaCl ₂				
Prod	6.75	5.5	18681	795	Tail, 14.5 ppg, Gas Migration Control	1.34	6.22	8017						20%

5. Minimum Specifications for Pressure Control:

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5,000-psi WP). Both units will be hydraulically operated, and the ram-type will be equipped with blind rams on bottom and 4 ½" x 7" variable pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5,000/250 psig and the annular preventer to 5,000/250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the second intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/250 psig and the annular preventer to 5,000/250 psig. The second intermediate casing will be tested to 2000 psi for 30 minutes prior to drillout.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.



6. Types and characteristics of the proposed mud system:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal. The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,300'	Fresh - Gel	8.6-8.8	28-34	N/c
1,300' – 9,017'	Brine	8.8-10.2	28-34	N/c
9,017' – 18,681' Lateral	Oil Base	10.0-12.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 10-11 ppg. In order to maintain hole stability, mud weights up to 12 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. Auxiliary well control and monitoring equipment:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H₂S monitoring and detection equipment will be utilized from surface casing point to TD.

(D) A wear bushing will be installed in the wellhead prior to drilling out of the surface casing.

8. Logging, testing and coring program:

GR–CCL–CNL Will be run in cased hole during completions phase of operations.

Open-hole logs are not planned for this well.

9. Abnormal conditions, pressures, temperatures and potential hazards:

The estimated bottom-hole temperature at 8,681' TVD (deepest point of the well) is 160F with an estimated maximum bottom-hole pressure (BHP) at the same point of 5,417 psig (based on 12 ppg MW). Hydrogen sulfate may be present in the area. All necessary precautions will be taken before drilling operations commence. See Hydrogen Sulfide Plan below:

10. Hydrogen Sulfide Plan:

A. All personnel shall receive proper awareness H₂S training.

B. Briefing Area: two perpendicular areas will be designated by signs and readily accessible.

C. Required Emergency Equipment

a. Well Control Equipment

i. Flare line 150' from wellhead to be ignited by auto ignition sparking system.

ii. Choke manifold with a remotely operated hydraulic choke.

iii. Mud/gas separator

b. Protective equipment for essential personnel

i. Breathing Apparatus

1. Rescue packs (SCBA) – 1 unit shall be placed at each briefing area, 2 shall be stored in a safety trailer on site.

2. Work/Escapes packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity



3. Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.
- ii. Auxiliary Rescue Equipment
 1. Stretcher
 2. Two OSHA full body harnesses
 3. 100 feet of 5/8 inches OSHA approved rope
 4. 1-20# class ABC fire extinguisher
- c. H2S Detection and Monitoring Equipment
 - i. A stationary detector with three sensors will be placed in the doghouse if equipped, set to visually alarm at 10 ppm and audible at 14 ppm. The detector will be calibrated a minimum of every 30 days or as needed. The sensors will be placed in the following places:
 1. Rig Floor
 2. Below Rig Floor / Near BOPs
 3. End of flow line or where well bore fluid is being discharged (near shakers)
 - ii. If H2S is encountered, measured values and formations will be provided to the BLM.
- d. Visual Warning Systems
 - i. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - ii. A colored condition flag will be on display, reflecting the current condition at the site at the time.
 - iii. Two windsocks will be placed in strategic locations, visible from all angles.
- e. Mud Program
 - i. The Mud program will be designed to minimize the volume of H2S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H2S bearing zones.
- f. Metallurgy
 - i. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service at the anticipated operating pressures to prevent sour sulfide stress cracking.
- g. Communication
 - i. Communication will be via cell phones and walkie talkies on location.

Franklin Mountain Energy has conducted a review of offset operated wells to determine if an H2S contingency plan is required for the proposed well. Based on concentrations of offset wells, proximity to main roads, and distance to populated areas, the radius of exposure created by a potential release was determined to be minimal and low enough to not necessitate an H2S contingency plan. This will be reevaluated during wellbore construction if H2S is observed and after the well is on production.

11. Anticipated starting date and duration of operations:

The drilling operations on the well should be finished in approximately one month. However, in order to minimize disturbance in the area and to improve efficiency Franklin Mountain is planning to drill all the wells on the pad prior to commence completion operations. To even further reduce the time heavy machinery is used the “batch drilling” method may be used. A batch drilling sequence sundry will be submitted for BLM approval prior to spud. A drilling rig with walking/skidding capabilities will be used.

**12. Disposal/environmental concerns:**

- (A) Drilled cuttings will be hauled to and disposed of in a state-certified disposal site.
- (B) Non-hazardous waste mud/cement from the drilling process will also be hauled to and disposed of in a state-certified disposal site.
- (C) Garbage will be hauled to the Pecos City Landfill.
- (D) Sewage (grey water) will be hauled to the Carlsbad City Landfill

13. Wellhead:

A multi-bowl wellhead system will be utilized.

After running the 13 3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5,000 psi pressure test. This pressure test will be repeated at least every 21 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5,000 psi.

After running the 2nd intermediate casing, and before drilling out, the wellhead, BOP, and related equipment will be tested to 10,000/250 psig.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Cactus Multi-Bowl WH system has been sent to the BLM office in Carlsbad.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing strings. After installation of the first intermediate string the pack-off and lower flanges will be pressure tested to 5000 psi. After installation of the second intermediate string, the pack-off and upper flange will be pressure tested to 10,000 psi.

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

14. Additional variance requests**A. Casing.**

In order to minimize potential environmental and technical hazards, this well is planned with two intermediate strings of casing.

1. Variance is requested to wave the centralizer requirements for the 7 5/8" casing due to the tight clearance with 9 5/8" string.
2. Variance is requested to wave/reduce the centralizer requirements for the 5 1/2" casing due to the tight clearance with 6 3/4" hole and 5 1/2" casing due to tight clearances.

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
 Site: Tatanka Fed Com
 Well: Tatanka Fed Com 103H
 Wellbore: OH
 Design: Plan #1



Azimuths to Grid North
 True North: -0.53°
 Magnetic North: 5.89°

Magnetic Field
 Strength: 47431.4nT
 Dip Angle: 59.80°
 Date: 6/24/2021
 Model: IGRF2020

PROJECT DETAILS: Lea County, NM (NAD83)

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

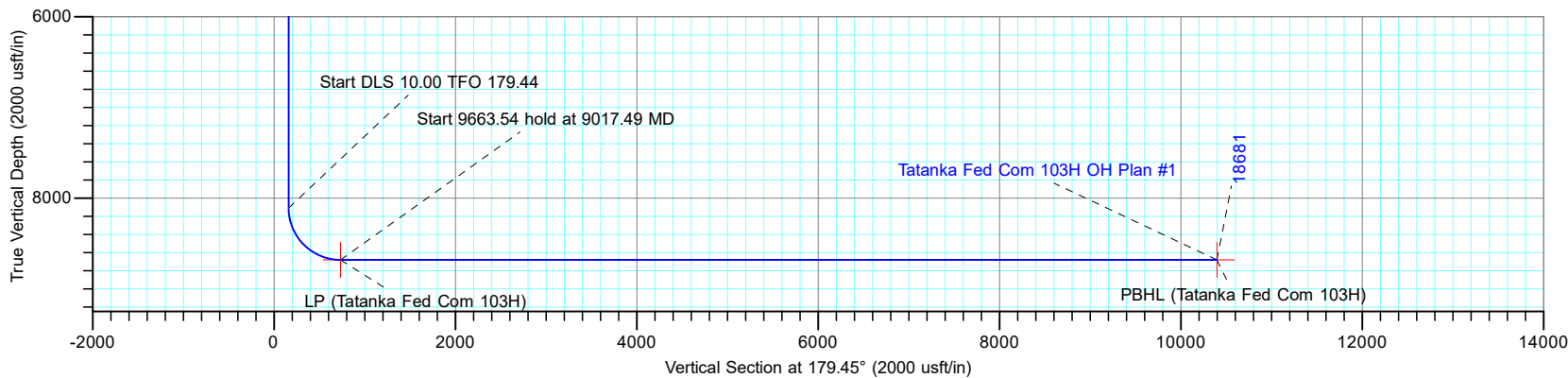
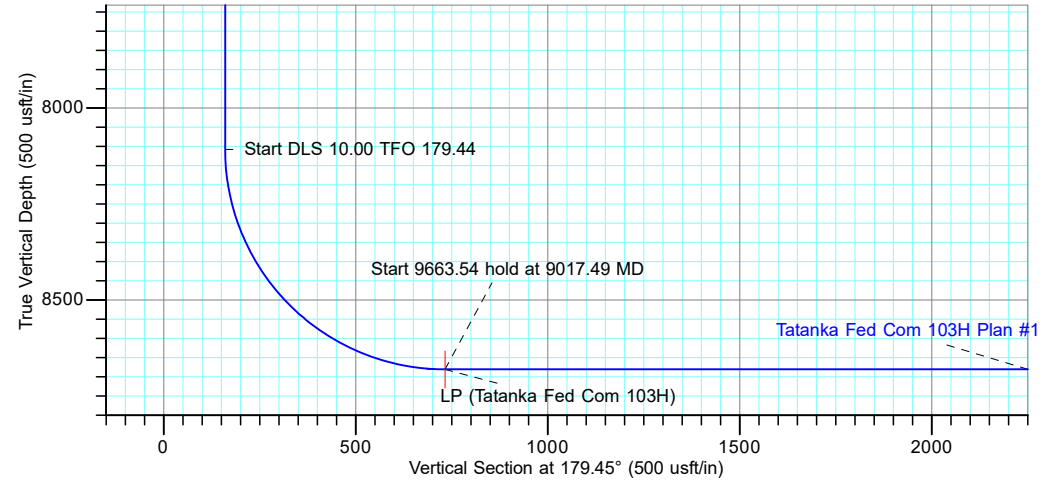
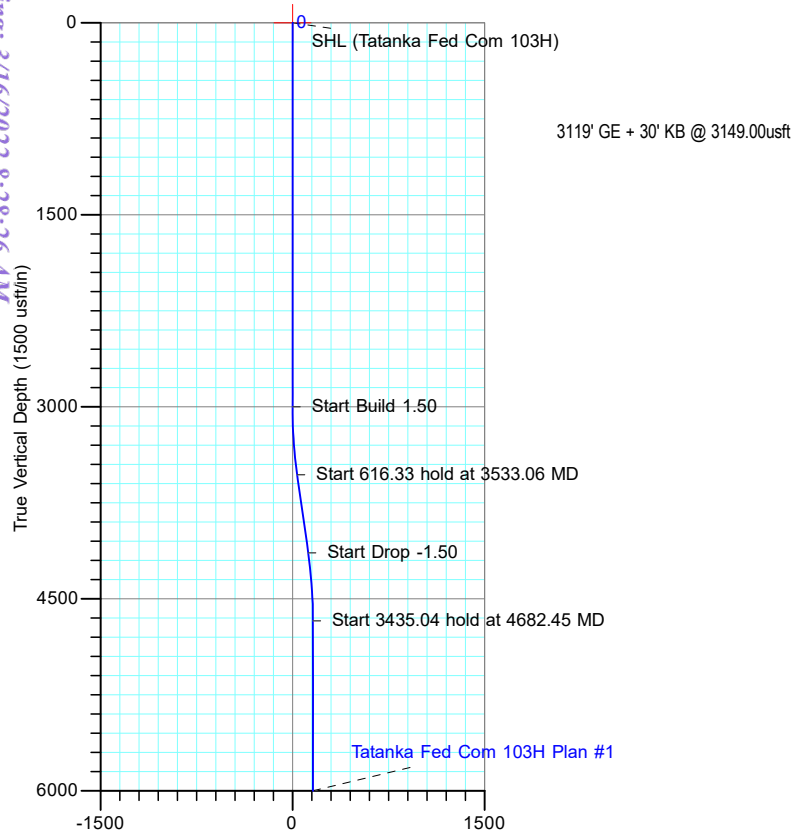


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3533.06	8.00	179.64	3531.33	-37.13	0.23	1.50	179.64	37.13	Start 616.33 hold at 3533.06 MD
4149.39	8.00	179.64	4141.67	-122.87	0.77	0.00	0.00	122.87	Start Drop -1.50
4682.45	0.00	0.00	4673.00	-160.00	1.00	1.50	180.00	160.00	Start 3435.04 hold at 4682.45 MD
8117.49	0.00	0.00	8108.04	-160.00	1.00	0.00	0.00	160.00	Start DLS 10.00 TFO 179.44
9017.49	90.00	179.44	8681.00	-732.93	6.57	10.00	179.44	732.96	Start 9663.54 hold at 9017.49 MD
18681.03	90.00	179.44	8681.00-10396.01	100.52	0.00	0.00	10396.50		TD at 18681.03

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
LP (Tatanka Fed Com 103H)	8681.00	-732.93	6.57	32.077499	-103.335838
PBHL (Tatanka Fed Com 103H)	8681.00	-10396.01	100.52	32.050938	-103.335824
SHL (Tatanka Fed Com 103H)	0.00	0.00	0.00	32.079514	-103.335838



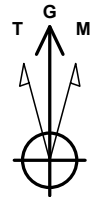
TOTAL DIRECTIONAL SERVICES LLC
 671 Academy Ct, Windsor, CO 80550
 Phone: (970) 460-9402

Plan: Plan #1 (Tatanka Fed Com 103H/OH)
 Tatanka Fed Com
 Created By: Dustin Ault Date: 1:29, June 25 2021
 Date: _____
 Approved: _____ Date: _____

Released to Imaging: 3/16/2022 8:28:26 AM

Franklin Mountain Energy

Project: Lea County, NM (NAD83)
Site: Tatanka Fed Com
Well: Tatanka Fed Com 103H
Wellbore: OH
Design: Plan #1



Azimuths to Grid North
True North: -0.53°
Magnetic North: 5.89°

Magnetic Field
Strength: 47431.4nT
Dip Angle: 59.80°
Date: 6/24/2021
Model: IGRF2020

PROJECT DETAILS: Lea County, NM (NAD83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

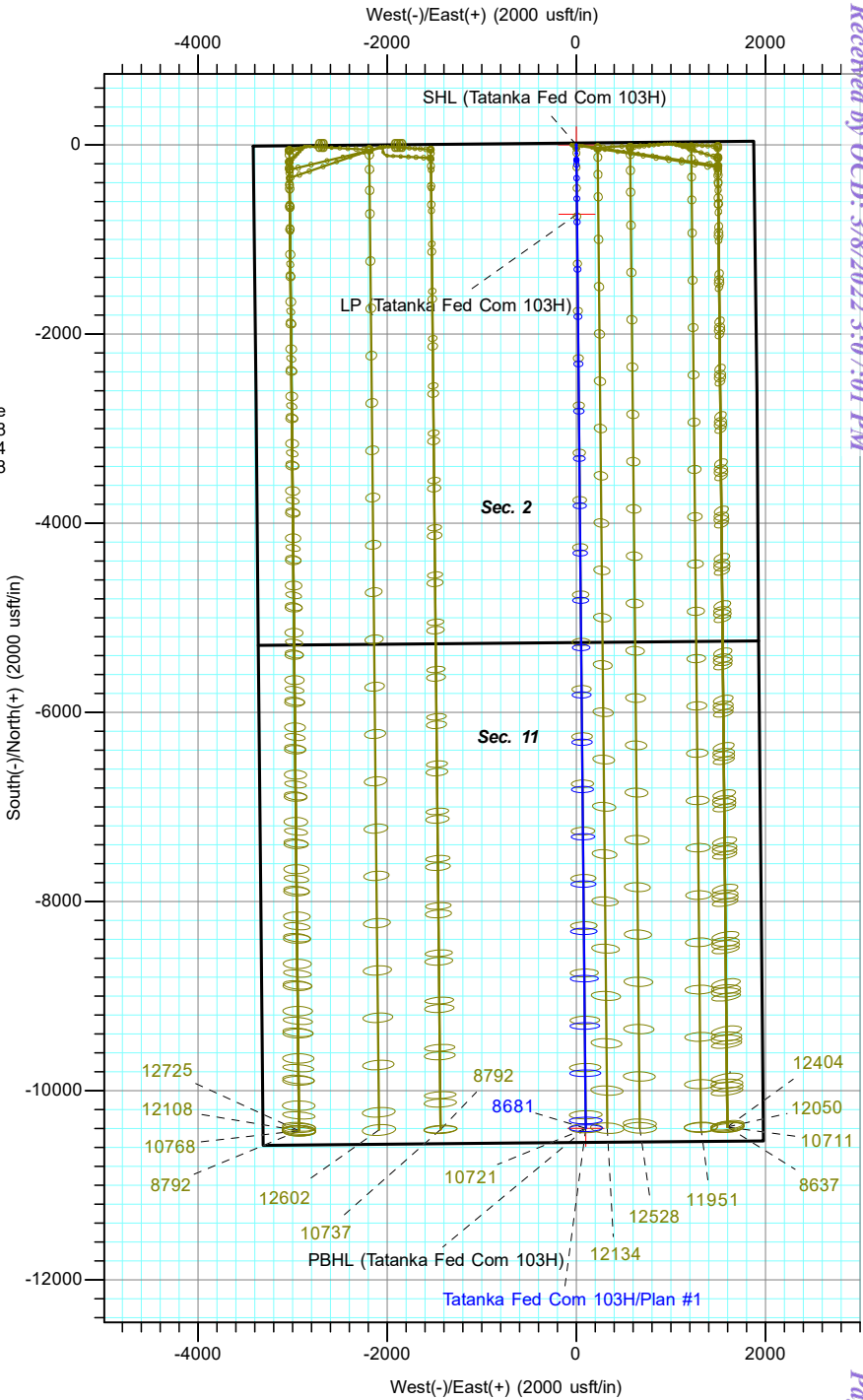
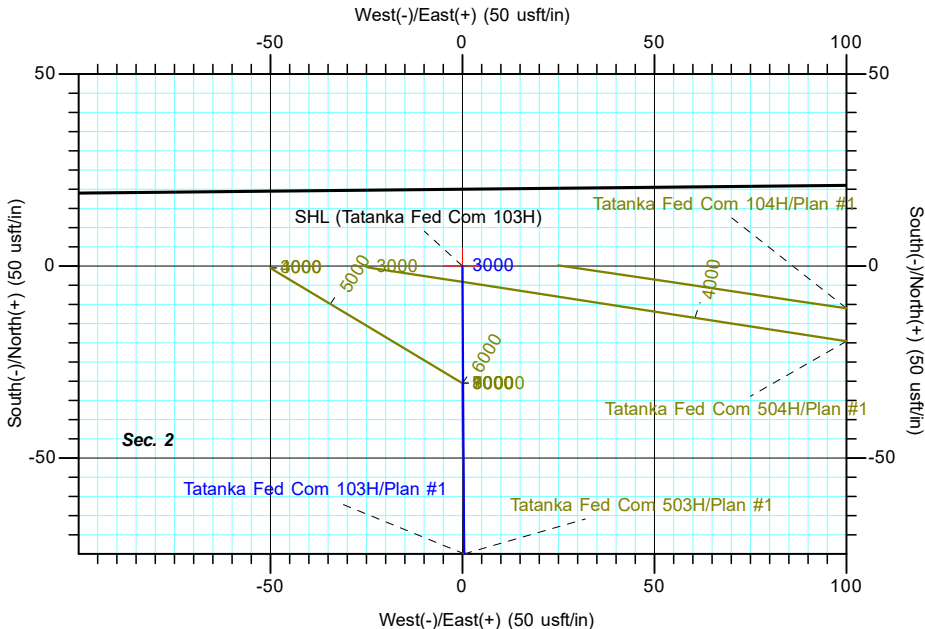


DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP (Tatanka Fed Com 103H)	8681.00	-732.93	6.57	393359.87	850295.49	32.077499	-103.335838
PBHL (Tatanka Fed Com 103H)	8681.00	-10396.01	100.52	383696.79	850389.44	32.050938	-103.335824
SHL (Tatanka Fed Com 103H)	0.00	0.00	0.00	394092.80	850288.92	32.079514	-103.335838

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.50
3533.06	8.00	179.64	3531.33	-37.13	0.23	1.50	179.64	37.13	Start 616.33 hold at 3533.06 MD
4149.39	8.00	179.64	4141.67	-122.87	0.77	0.00	0.00	0.00	Start Drop -1.50
4682.45	0.00	0.00	4673.00	-160.00	1.00	1.50	180.00	160.00	Start 3435.04 hold at 4682.45 MD
8117.49	0.00	0.00	8108.04	-160.00	1.00	0.00	0.00	160.00	Start DLS 10.00 TFO 179.44
9017.49	90.00	179.44	8681.00	-732.93	6.57	10.00	179.44	732.96	Start 9663.54 hold at 9017.49 MD
18681.03	90.00	179.44	8681.00	-10396.01	100.52	0.00	0.00	10396.50	TD at 18681.03



TOTAL DIRECTIONAL SERVICES LLC
671 Academy Ct, Windsor, CO 80550
Phone: (970) 460-9402

Plan: Plan #1 (Tatanka Fed Com 103H/OH)
Tatanka Fed Com
Created By: Dustin Ault
Date: 1:30, June 25 2021
Approved: _____
Date: _____

Received by OCD: 3/8/2022 3:07:01 PM

Page 19 of 122



Franklin Mountain Energy

Lea County, NM (NAD83)

Tatanka Fed Com

Tatanka Fed Com 103H

OH

Plan: Plan #1

Standard Planning Report

25 June, 2021





Total Directional Services Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Company:	Franklin Mountain Energy	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Lea County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Tatanka Fed Com			
Site Position:		Northing:	394,075.36 usft	Latitude:	32.079539
From:	Map	Easting:	847,416.74 usft	Longitude:	-103.345111
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.52

Well	Tatanka Fed Com 103H					
Well Position	+N/-S	17.44 usft	Northing:	394,092.80 usft	Latitude:	32.079514
	+E/-W	2,872.18 usft	Easting:	850,288.92 usft	Longitude:	-103.335838
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,119.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	6/24/2021	6.42	59.80	47,431.43030962

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.45

Plan Survey Tool Program	Date	6/25/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,680.77 Plan #1 (OH)	OWSG (Rev2) MWD		
			OWSG MWD - Standard		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,533.06	8.00	179.64	3,531.33	-37.13	0.23	1.50	1.50	0.00	179.64	
4,149.39	8.00	179.64	4,141.67	-122.87	0.77	0.00	0.00	0.00	0.00	
4,682.45	0.00	0.00	4,673.00	-160.00	1.00	1.50	-1.50	0.00	180.00	
8,117.49	0.00	0.00	8,108.04	-160.00	1.00	0.00	0.00	0.00	0.00	
9,017.49	90.00	179.44	8,681.00	-732.93	6.57	10.00	10.00	19.94	179.44	
18,681.03	90.00	179.44	8,681.00	-10,396.01	100.52	0.00	0.00	0.00	0.00	PBHL (Tatanka Fed C



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Company:	Franklin Mountain Energy	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (Tatanka Fed Com 103H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 1.50									
3,100.00	1.50	179.64	3,099.99	-1.31	0.01	1.31	1.50	1.50	0.00
3,200.00	3.00	179.64	3,199.91	-5.23	0.03	5.23	1.50	1.50	0.00
3,300.00	4.50	179.64	3,299.69	-11.77	0.07	11.77	1.50	1.50	0.00
3,400.00	6.00	179.64	3,399.27	-20.92	0.13	20.92	1.50	1.50	0.00
3,500.00	7.50	179.64	3,498.57	-32.68	0.20	32.68	1.50	1.50	0.00
3,533.06	8.00	179.64	3,531.33	-37.13	0.23	37.13	1.50	1.50	0.00
Start 616.33 hold at 3533.06 MD									
3,600.00	8.00	179.64	3,597.62	-46.45	0.29	46.45	0.00	0.00	0.00
3,700.00	8.00	179.64	3,696.65	-60.36	0.38	60.36	0.00	0.00	0.00
3,800.00	8.00	179.64	3,795.68	-74.27	0.46	74.27	0.00	0.00	0.00
3,900.00	8.00	179.64	3,894.70	-88.18	0.55	88.18	0.00	0.00	0.00
4,000.00	8.00	179.64	3,993.73	-102.09	0.64	102.09	0.00	0.00	0.00
4,100.00	8.00	179.64	4,092.76	-116.00	0.72	116.00	0.00	0.00	0.00
4,149.39	8.00	179.64	4,141.67	-122.87	0.77	122.87	0.00	0.00	0.00
Start Drop -1.50									
4,200.00	7.24	179.64	4,191.83	-129.57	0.81	129.58	1.50	-1.50	0.00
4,300.00	5.74	179.64	4,291.19	-140.87	0.88	140.87	1.50	-1.50	0.00
4,400.00	4.24	179.64	4,390.81	-149.56	0.93	149.56	1.50	-1.50	0.00
4,500.00	2.74	179.64	4,490.62	-155.64	0.97	155.65	1.50	-1.50	0.00
4,600.00	1.24	179.64	4,590.56	-159.11	0.99	159.11	1.50	-1.50	0.00
4,682.45	0.00	0.00	4,673.00	-160.00	1.00	160.00	1.50	-1.50	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Company:	Franklin Mountain Energy	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Start 3435.04 hold at 4682.45 MD									
4,700.00	0.00	0.00	4,690.55	-160.00	1.00	160.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,790.55	-160.00	1.00	160.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,890.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,000.00	0.00	0.00	4,990.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,090.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,190.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,290.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,390.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,490.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,590.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,690.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,790.55	-160.00	1.00	160.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,890.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,990.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,090.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,190.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,290.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,390.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,490.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,590.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,690.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,790.55	-160.00	1.00	160.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,890.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,000.00	0.00	0.00	6,990.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,090.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,190.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,290.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,390.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,490.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,590.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,690.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,790.55	-160.00	1.00	160.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,890.55	-160.00	1.00	160.00	0.00	0.00	0.00
8,000.00	0.00	0.00	7,990.55	-160.00	1.00	160.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,090.55	-160.00	1.00	160.00	0.00	0.00	0.00
8,117.49	0.00	0.00	8,108.04	-160.00	1.00	160.00	0.00	0.00	0.00
Start DLS 10.00 TFO 179.44									
8,150.00	3.25	179.44	8,140.53	-160.92	1.01	160.92	10.00	10.00	0.00
8,200.00	8.25	179.44	8,190.27	-165.93	1.06	165.93	10.00	10.00	0.00
8,250.00	13.25	179.44	8,239.37	-175.25	1.15	175.26	10.00	10.00	0.00
8,300.00	18.25	179.44	8,287.48	-188.82	1.28	188.83	10.00	10.00	0.00
8,350.00	23.25	179.44	8,334.22	-206.53	1.45	206.54	10.00	10.00	0.00
8,400.00	28.25	179.44	8,379.24	-228.25	1.66	228.25	10.00	10.00	0.00
8,450.00	33.25	179.44	8,422.20	-253.80	1.91	253.81	10.00	10.00	0.00
8,500.00	38.25	179.44	8,462.76	-283.01	2.20	283.01	10.00	10.00	0.00
8,550.00	43.25	179.44	8,500.63	-315.63	2.51	315.64	10.00	10.00	0.00
8,600.00	48.25	179.44	8,535.51	-351.43	2.86	351.45	10.00	10.00	0.00
8,650.00	53.25	179.44	8,567.13	-390.14	3.24	390.15	10.00	10.00	0.00
8,700.00	58.25	179.44	8,595.26	-431.46	3.64	431.47	10.00	10.00	0.00
8,750.00	63.25	179.44	8,619.68	-475.07	4.06	475.08	10.00	10.00	0.00
8,800.00	68.25	179.44	8,640.21	-520.64	4.51	520.66	10.00	10.00	0.00
8,850.00	73.25	179.44	8,656.69	-567.82	4.97	567.85	10.00	10.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Company:	Franklin Mountain Energy	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,900.00	78.25	179.44	8,668.99	-616.27	5.44	616.29	10.00	10.00	0.00
8,950.00	83.25	179.44	8,677.03	-665.60	5.92	665.63	10.00	10.00	0.00
9,000.00	88.25	179.44	8,680.73	-715.45	6.40	715.47	10.00	10.00	0.00
9,017.49	90.00	179.44	8,681.00	-732.93	6.57	732.96	10.00	10.00	0.00
Start 9663.54 hold at 9017.49 MD - LP (Tatanka Fed Com 103H)									
9,100.00	90.00	179.44	8,681.00	-815.44	7.37	815.47	0.00	0.00	0.00
9,200.00	90.00	179.44	8,681.00	-915.43	8.34	915.47	0.00	0.00	0.00
9,300.00	90.00	179.44	8,681.00	-1,015.43	9.32	1,015.47	0.00	0.00	0.00
9,400.00	90.00	179.44	8,681.00	-1,115.42	10.29	1,115.47	0.00	0.00	0.00
9,500.00	90.00	179.44	8,681.00	-1,215.42	11.26	1,215.47	0.00	0.00	0.00
9,600.00	90.00	179.44	8,681.00	-1,315.41	12.23	1,315.47	0.00	0.00	0.00
9,700.00	90.00	179.44	8,681.00	-1,415.41	13.21	1,415.47	0.00	0.00	0.00
9,800.00	90.00	179.44	8,681.00	-1,515.40	14.18	1,515.47	0.00	0.00	0.00
9,900.00	90.00	179.44	8,681.00	-1,615.40	15.15	1,615.47	0.00	0.00	0.00
10,000.00	90.00	179.44	8,681.00	-1,715.40	16.12	1,715.47	0.00	0.00	0.00
10,100.00	90.00	179.44	8,681.00	-1,815.39	17.09	1,815.47	0.00	0.00	0.00
10,200.00	90.00	179.44	8,681.00	-1,915.39	18.07	1,915.47	0.00	0.00	0.00
10,300.00	90.00	179.44	8,681.00	-2,015.38	19.04	2,015.47	0.00	0.00	0.00
10,400.00	90.00	179.44	8,681.00	-2,115.38	20.01	2,115.47	0.00	0.00	0.00
10,500.00	90.00	179.44	8,681.00	-2,215.37	20.98	2,215.47	0.00	0.00	0.00
10,600.00	90.00	179.44	8,681.00	-2,315.37	21.96	2,315.47	0.00	0.00	0.00
10,700.00	90.00	179.44	8,681.00	-2,415.36	22.93	2,415.47	0.00	0.00	0.00
10,800.00	90.00	179.44	8,681.00	-2,515.36	23.90	2,515.47	0.00	0.00	0.00
10,900.00	90.00	179.44	8,681.00	-2,615.35	24.87	2,615.47	0.00	0.00	0.00
11,000.00	90.00	179.44	8,681.00	-2,715.35	25.84	2,715.47	0.00	0.00	0.00
11,100.00	90.00	179.44	8,681.00	-2,815.34	26.82	2,815.47	0.00	0.00	0.00
11,200.00	90.00	179.44	8,681.00	-2,915.34	27.79	2,915.47	0.00	0.00	0.00
11,300.00	90.00	179.44	8,681.00	-3,015.33	28.76	3,015.47	0.00	0.00	0.00
11,400.00	90.00	179.44	8,681.00	-3,115.33	29.73	3,115.47	0.00	0.00	0.00
11,500.00	90.00	179.44	8,681.00	-3,215.32	30.71	3,215.47	0.00	0.00	0.00
11,600.00	90.00	179.44	8,681.00	-3,315.32	31.68	3,315.47	0.00	0.00	0.00
11,700.00	90.00	179.44	8,681.00	-3,415.31	32.65	3,415.47	0.00	0.00	0.00
11,800.00	90.00	179.44	8,681.00	-3,515.31	33.62	3,515.47	0.00	0.00	0.00
11,900.00	90.00	179.44	8,681.00	-3,615.31	34.59	3,615.47	0.00	0.00	0.00
12,000.00	90.00	179.44	8,681.00	-3,715.30	35.57	3,715.47	0.00	0.00	0.00
12,100.00	90.00	179.44	8,681.00	-3,815.30	36.54	3,815.47	0.00	0.00	0.00
12,200.00	90.00	179.44	8,681.00	-3,915.29	37.51	3,915.47	0.00	0.00	0.00
12,300.00	90.00	179.44	8,681.00	-4,015.29	38.48	4,015.47	0.00	0.00	0.00
12,400.00	90.00	179.44	8,681.00	-4,115.28	39.46	4,115.47	0.00	0.00	0.00
12,500.00	90.00	179.44	8,681.00	-4,215.28	40.43	4,215.47	0.00	0.00	0.00
12,600.00	90.00	179.44	8,681.00	-4,315.27	41.40	4,315.47	0.00	0.00	0.00
12,700.00	90.00	179.44	8,681.00	-4,415.27	42.37	4,415.47	0.00	0.00	0.00
12,800.00	90.00	179.44	8,681.00	-4,515.26	43.34	4,515.47	0.00	0.00	0.00
12,900.00	90.00	179.44	8,681.00	-4,615.26	44.32	4,615.47	0.00	0.00	0.00
13,000.00	90.00	179.44	8,681.00	-4,715.25	45.29	4,715.47	0.00	0.00	0.00
13,100.00	90.00	179.44	8,681.00	-4,815.25	46.26	4,815.47	0.00	0.00	0.00
13,200.00	90.00	179.44	8,681.00	-4,915.24	47.23	4,915.47	0.00	0.00	0.00
13,300.00	90.00	179.44	8,681.00	-5,015.24	48.21	5,015.47	0.00	0.00	0.00
13,400.00	90.00	179.44	8,681.00	-5,115.23	49.18	5,115.47	0.00	0.00	0.00
13,500.00	90.00	179.44	8,681.00	-5,215.23	50.15	5,215.47	0.00	0.00	0.00
13,600.00	90.00	179.44	8,681.00	-5,315.23	51.12	5,315.47	0.00	0.00	0.00
13,700.00	90.00	179.44	8,681.00	-5,415.22	52.09	5,415.47	0.00	0.00	0.00
13,800.00	90.00	179.44	8,681.00	-5,515.22	53.07	5,515.47	0.00	0.00	0.00
13,900.00	90.00	179.44	8,681.00	-5,615.21	54.04	5,615.47	0.00	0.00	0.00



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Company:	Franklin Mountain Energy	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,000.00	90.00	179.44	8,681.00	-5,715.21	55.01	5,715.47	0.00	0.00	0.00
14,100.00	90.00	179.44	8,681.00	-5,815.20	55.98	5,815.47	0.00	0.00	0.00
14,200.00	90.00	179.44	8,681.00	-5,915.20	56.96	5,915.47	0.00	0.00	0.00
14,300.00	90.00	179.44	8,681.00	-6,015.19	57.93	6,015.47	0.00	0.00	0.00
14,400.00	90.00	179.44	8,681.00	-6,115.19	58.90	6,115.47	0.00	0.00	0.00
14,500.00	90.00	179.44	8,681.00	-6,215.18	59.87	6,215.47	0.00	0.00	0.00
14,600.00	90.00	179.44	8,681.00	-6,315.18	60.84	6,315.47	0.00	0.00	0.00
14,700.00	90.00	179.44	8,681.00	-6,415.17	61.82	6,415.47	0.00	0.00	0.00
14,800.00	90.00	179.44	8,681.00	-6,515.17	62.79	6,515.47	0.00	0.00	0.00
14,900.00	90.00	179.44	8,681.00	-6,615.16	63.76	6,615.47	0.00	0.00	0.00
15,000.00	90.00	179.44	8,681.00	-6,715.16	64.73	6,715.47	0.00	0.00	0.00
15,100.00	90.00	179.44	8,681.00	-6,815.15	65.70	6,815.47	0.00	0.00	0.00
15,200.00	90.00	179.44	8,681.00	-6,915.15	66.68	6,915.47	0.00	0.00	0.00
15,300.00	90.00	179.44	8,681.00	-7,015.14	67.65	7,015.47	0.00	0.00	0.00
15,400.00	90.00	179.44	8,681.00	-7,115.14	68.62	7,115.47	0.00	0.00	0.00
15,500.00	90.00	179.44	8,681.00	-7,215.14	69.59	7,215.47	0.00	0.00	0.00
15,600.00	90.00	179.44	8,681.00	-7,315.13	70.57	7,315.47	0.00	0.00	0.00
15,700.00	90.00	179.44	8,681.00	-7,415.13	71.54	7,415.47	0.00	0.00	0.00
15,800.00	90.00	179.44	8,681.00	-7,515.12	72.51	7,515.47	0.00	0.00	0.00
15,900.00	90.00	179.44	8,681.00	-7,615.12	73.48	7,615.47	0.00	0.00	0.00
16,000.00	90.00	179.44	8,681.00	-7,715.11	74.45	7,715.47	0.00	0.00	0.00
16,100.00	90.00	179.44	8,681.00	-7,815.11	75.43	7,815.47	0.00	0.00	0.00
16,200.00	90.00	179.44	8,681.00	-7,915.10	76.40	7,915.47	0.00	0.00	0.00
16,300.00	90.00	179.44	8,681.00	-8,015.10	77.37	8,015.47	0.00	0.00	0.00
16,400.00	90.00	179.44	8,681.00	-8,115.09	78.34	8,115.47	0.00	0.00	0.00
16,500.00	90.00	179.44	8,681.00	-8,215.09	79.32	8,215.47	0.00	0.00	0.00
16,600.00	90.00	179.44	8,681.00	-8,315.08	80.29	8,315.47	0.00	0.00	0.00
16,700.00	90.00	179.44	8,681.00	-8,415.08	81.26	8,415.47	0.00	0.00	0.00
16,800.00	90.00	179.44	8,681.00	-8,515.07	82.23	8,515.47	0.00	0.00	0.00
16,900.00	90.00	179.44	8,681.00	-8,615.07	83.20	8,615.47	0.00	0.00	0.00
17,000.00	90.00	179.44	8,681.00	-8,715.06	84.18	8,715.47	0.00	0.00	0.00
17,100.00	90.00	179.44	8,681.00	-8,815.06	85.15	8,815.47	0.00	0.00	0.00
17,200.00	90.00	179.44	8,681.00	-8,915.06	86.12	8,915.47	0.00	0.00	0.00
17,300.00	90.00	179.44	8,681.00	-9,015.05	87.09	9,015.47	0.00	0.00	0.00
17,400.00	90.00	179.44	8,681.00	-9,115.05	88.07	9,115.47	0.00	0.00	0.00
17,500.00	90.00	179.44	8,681.00	-9,215.04	89.04	9,215.47	0.00	0.00	0.00
17,600.00	90.00	179.44	8,681.00	-9,315.04	90.01	9,315.47	0.00	0.00	0.00
17,700.00	90.00	179.44	8,681.00	-9,415.03	90.98	9,415.47	0.00	0.00	0.00
17,800.00	90.00	179.44	8,681.00	-9,515.03	91.95	9,515.47	0.00	0.00	0.00
17,900.00	90.00	179.44	8,681.00	-9,615.02	92.93	9,615.47	0.00	0.00	0.00
18,000.00	90.00	179.44	8,681.00	-9,715.02	93.90	9,715.47	0.00	0.00	0.00
18,100.00	90.00	179.44	8,681.00	-9,815.01	94.87	9,815.47	0.00	0.00	0.00
18,200.00	90.00	179.44	8,681.00	-9,915.01	95.84	9,915.47	0.00	0.00	0.00
18,300.00	90.00	179.44	8,681.00	-10,015.00	96.82	10,015.47	0.00	0.00	0.00
18,400.00	90.00	179.44	8,681.00	-10,115.00	97.79	10,115.47	0.00	0.00	0.00
18,500.00	90.00	179.44	8,681.00	-10,214.99	98.76	10,215.47	0.00	0.00	0.00
18,600.00	90.00	179.44	8,681.00	-10,314.99	99.73	10,315.47	0.00	0.00	0.00
18,681.03	90.00	179.44	8,681.00	-10,396.01	100.52	10,396.50	0.00	0.00	0.00
TD at 18681.03 - PBHL (Tatanka Fed Com 103H)									



Total Directional Services

Planning Report



Database:	EDM 5000.15 Single User Db	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Company:	Franklin Mountain Energy	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Project:	Lea County, NM (NAD83)	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site:	Tatanka Fed Com	North Reference:	Grid
Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (Tatanka Fed Com - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	394,092.80	850,288.92	32.079514	-103.335838
LP (Tatanka Fed Com 103H - plan hits target center - Point	0.00	0.00	8,681.00	-732.93	6.57	393,359.87	850,295.49	32.077500	-103.335839
PBHL (Tatanka Fed Com 103H - plan hits target center - Point	0.00	0.00	8,681.00	-10,396.01	100.52	383,696.79	850,389.44	32.050938	-103.335824

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
3,000.00	3,000.00	0.00	0.00	Start Build 1.50	
3,533.06	3,531.33	-37.13	0.23	Start 616.33 hold at 3533.06 MD	
4,149.39	4,141.67	-122.87	0.77	Start Drop -1.50	
4,682.45	4,673.00	-160.00	1.00	Start 3435.04 hold at 4682.45 MD	
8,117.49	8,108.04	-160.00	1.00	Start DLS 10.00 TFO 179.44	
9,017.49	8,681.00	-732.93	6.57	Start 9663.54 hold at 9017.49 MD	
18,681.03	8,681.00	-10,396.01	100.52	TD at 18681.03	



Franklin Mountain Energy

Lea County, NM (NAD83)

Tatanka Fed Com

Tatanka Fed Com 103H

OH

Plan #1

Anticollision Report

25 June, 2021





Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum ellipse separation of 1,000.00 usft	Error Surface:	Combined Separation
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	6/25/2021		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	18,680.77	Plan #1 (OH)	OWSG (Rev2) MWD	OWSG MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Tatanka Fed Com						
Tatanka Fed Com 101H - OH - Plan #1	3,196.79	3,200.00	2,070.35	2,054.51	130.645	CC
Tatanka Fed Com 101H - OH - Plan #1	3,200.00	3,200.00	2,070.36	2,054.50	130.585	ES
Tatanka Fed Com 101H - OH - Plan #1	18,681.03	18,762.37	3,035.26	2,789.69	12.360	SF
Tatanka Fed Com 102H - OH - Plan #1	8,117.49	8,153.46	1,538.43	1,498.14	38.183	CC
Tatanka Fed Com 102H - OH - Plan #1	18,681.03	18,862.99	1,540.48	1,294.71	6.268	ES, SF
Tatanka Fed Com 104H - OH - Plan #1	2,000.00	1,999.40	25.00	15.19	2.549	CC, ES, SF
Tatanka Fed Com 501H - OH - Plan #1	3,228.18	3,230.34	2,020.36	2,004.37	126.304	CC
Tatanka Fed Com 501H - OH - Plan #1	3,400.00	3,400.00	2,020.41	2,003.59	120.101	ES
Tatanka Fed Com 501H - OH - Plan #1	18,681.03	20,841.66	3,681.69	3,471.03	17.476	SF
Tatanka Fed Com 502H - OH - Plan #1	8,117.49	8,135.52	1,544.27	1,503.94	38.290	CC
Tatanka Fed Com 502H - OH - Plan #1	8,150.00	8,168.01	1,544.35	1,503.85	38.140	ES
Tatanka Fed Com 502H - OH - Plan #1	18,681.03	20,879.44	2,566.84	2,394.40	14.885	SF
Tatanka Fed Com 503H - OH - Plan #1	3,035.78	3,035.08	49.99	34.94	3.321	CC
Tatanka Fed Com 503H - OH - Plan #1	3,200.00	3,199.21	50.25	34.40	3.170	ES
Tatanka Fed Com 503H - OH - Plan #1	3,300.00	3,298.99	51.32	34.99	3.142	SF
Tatanka Fed Com 504H - OH - Plan #1	3,025.31	3,024.31	24.99	9.99	1.666	CC
Tatanka Fed Com 504H - OH - Plan #1	3,100.00	3,098.99	25.02	9.65	1.628	ES
Tatanka Fed Com 504H - OH - Plan #1	3,200.00	3,198.91	25.52	9.66	1.610	SF
Tatanka Fed Com 601H - OH - Plan #2	3,000.00	3,015.50	2,872.23	2,857.31	192.529	CC
Tatanka Fed Com 601H - OH - Plan #2	3,200.00	3,200.00	2,872.28	2,856.43	181.168	ES
Tatanka Fed Com 601H - OH - Plan #2	18,681.03	22,129.15	4,576.18	4,392.28	24.884	SF
Tatanka Fed Com 604H - OH - Plan #2	3,000.00	2,973.70	989.84	975.03	66.824	CC
Tatanka Fed Com 604H - OH - Plan #2	3,400.00	3,372.97	990.14	973.39	59.099	ES
Tatanka Fed Com 604H - OH - Plan #2	18,681.03	22,053.45	3,489.35	3,351.93	25.393	SF
Tatanka Fed Com 704H - OH - Plan #2	8,117.49	8,149.34	260.70	220.01	6.406	CC, ES
Tatanka Fed Com 704H - OH - Plan #2	8,150.00	8,181.83	261.16	220.30	6.392	SF
Tatanka Fed Com 705H - OH - Plan #2	3,000.00	2,973.00	1,014.83	1,000.02	68.519	CC
Tatanka Fed Com 705H - OH - Plan #2	3,300.00	3,272.69	1,014.95	998.68	62.388	ES
Tatanka Fed Com 705H - OH - Plan #2	18,681.03	22,055.89	3,686.53	3,542.95	25.675	SF
Tatanka Fed Com 801H - OH - Plan #2	3,000.00	3,015.30	2,847.23	2,832.31	190.859	CC
Tatanka Fed Com 801H - OH - Plan #2	3,300.00	3,300.00	2,847.30	2,830.96	174.282	ES
Tatanka Fed Com 801H - OH - Plan #2	9,500.00	8,702.81	3,258.47	3,211.68	69.638	SF
Tatanka Fed Com 802H - OH - Plan #2	8,117.49	8,174.86	2,192.90	2,152.44	54.200	CC
Tatanka Fed Com 802H - OH - Plan #2	8,150.00	8,207.35	2,192.96	2,152.34	53.988	ES
Tatanka Fed Com 802H - OH - Plan #2	18,681.03	22,787.51	4,489.59	4,331.40	28.380	SF
Tatanka Fed Com 805H - OH - Plan #2	8,117.49	8,101.94	584.66	544.42	14.532	CC, ES
Tatanka Fed Com 805H - OH - Plan #2	8,300.00	8,281.38	591.72	550.59	14.385	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Tatanka Fed Com						
Tatanka Fed Com 806H - OH - Plan #2	3,000.00	2,971.20	1,039.83	1,025.03	70.229	CC
Tatanka Fed Com 806H - OH - Plan #2	3,200.00	3,171.11	1,039.87	1,024.09	65.893	ES
Tatanka Fed Com 806H - OH - Plan #2	18,681.03	22,521.43	4,012.43	3,871.93	28.557	SF

Offset Design

Tatanka Fed Com - Tatanka Fed Com 101H - OH - Plan #1

Offset Site Error: 0.00 usft

Survey Program: 0-CWSG (Rev2) MWD

Offset Well Error: 0.00 usft

Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	3.40	3.40	0.00	0.00	-90.55	-19.91	-2,070.27	2,070.37				
100.00	100.00	103.40	103.40	0.13	0.14	-90.55	-19.91	-2,070.27	2,070.37	2,070.18	0.19	N/A	
200.00	200.00	203.40	203.40	0.48	0.50	-90.55	-19.91	-2,070.27	2,070.37	2,069.67	0.69	2,987.275	
300.00	300.00	303.40	303.40	0.84	0.85	-90.55	-19.91	-2,070.27	2,070.37	2,069.17	1.20	1,725.313	
400.00	400.00	403.40	403.40	1.20	1.21	-90.55	-19.91	-2,070.27	2,070.37	2,068.66	1.71	1,212.910	
500.00	500.00	503.40	503.40	1.56	1.57	-90.55	-19.91	-2,070.27	2,070.37	2,068.15	2.21	935.171	
600.00	600.00	603.40	603.40	1.92	1.93	-90.55	-19.91	-2,070.27	2,070.37	2,067.64	2.72	760.928	
700.00	700.00	703.40	703.40	2.28	2.29	-90.55	-19.91	-2,070.27	2,070.37	2,067.14	3.23	641.418	
800.00	800.00	803.40	803.40	2.63	2.65	-90.55	-19.91	-2,070.27	2,070.37	2,066.63	3.73	554.352	
900.00	900.00	903.40	903.40	2.99	3.01	-90.55	-19.91	-2,070.27	2,070.37	2,066.12	4.24	488.098	
1,000.00	1,000.00	1,003.40	1,003.40	3.35	3.36	-90.55	-19.91	-2,070.27	2,070.37	2,065.62	4.75	435.990	
1,100.00	1,100.00	1,103.40	1,103.40	3.71	3.72	-90.55	-19.91	-2,070.27	2,070.37	2,065.11	5.26	393.934	
1,200.00	1,200.00	1,203.40	1,203.40	4.07	4.08	-90.55	-19.91	-2,070.27	2,070.37	2,064.60	5.76	359.278	
1,300.00	1,300.00	1,303.40	1,303.40	4.43	4.44	-90.55	-19.91	-2,070.27	2,070.37	2,064.10	6.27	330.227	
1,400.00	1,400.00	1,403.40	1,403.40	4.79	4.80	-90.55	-19.91	-2,070.27	2,070.37	2,063.59	6.78	305.522	
1,500.00	1,500.00	1,503.40	1,503.40	5.14	5.16	-90.55	-19.91	-2,070.27	2,070.37	2,063.08	7.28	284.257	
1,600.00	1,600.00	1,603.40	1,603.40	5.50	5.51	-90.55	-19.91	-2,070.27	2,070.37	2,062.58	7.79	265.759	
1,700.00	1,700.00	1,703.40	1,703.40	5.86	5.87	-90.55	-19.91	-2,070.27	2,070.37	2,062.07	8.30	249.522	
1,800.00	1,800.00	1,803.40	1,803.40	6.22	6.23	-90.55	-19.91	-2,070.27	2,070.37	2,061.56	8.80	235.154	
1,900.00	1,900.00	1,903.40	1,903.40	6.58	6.59	-90.55	-19.91	-2,070.27	2,070.37	2,061.05	9.31	222.351	
2,000.00	2,000.00	2,003.40	2,003.40	6.94	6.95	-90.55	-19.91	-2,070.27	2,070.37	2,060.55	9.82	210.870	
2,100.00	2,100.00	2,103.40	2,103.40	7.29	7.31	-90.55	-19.91	-2,070.27	2,070.37	2,060.04	10.33	200.517	
2,200.00	2,200.00	2,203.40	2,203.40	7.65	7.67	-90.55	-19.91	-2,070.27	2,070.37	2,059.53	10.83	191.132	
2,300.00	2,300.00	2,303.40	2,303.40	8.01	8.02	-90.55	-19.91	-2,070.27	2,070.37	2,059.03	11.34	182.587	
2,400.00	2,400.00	2,403.40	2,403.40	8.37	8.38	-90.55	-19.91	-2,070.27	2,070.37	2,058.52	11.85	174.773	
2,500.00	2,500.00	2,503.40	2,503.40	8.73	8.74	-90.55	-19.91	-2,070.27	2,070.37	2,058.01	12.35	167.600	
2,600.00	2,600.00	2,603.40	2,603.40	9.09	9.10	-90.55	-19.91	-2,070.27	2,070.37	2,057.51	12.86	160.993	
2,700.00	2,700.00	2,703.40	2,703.40	9.45	9.46	-90.55	-19.91	-2,070.27	2,070.37	2,057.00	13.37	154.888	
2,800.00	2,800.00	2,803.40	2,803.40	9.80	9.82	-90.55	-19.91	-2,070.27	2,070.37	2,056.49	13.87	149.228	
2,900.00	2,900.00	2,903.40	2,903.40	10.16	10.17	-90.55	-19.91	-2,070.27	2,070.37	2,055.98	14.38	143.967	
3,000.00	3,000.00	3,003.40	3,003.40	10.52	10.53	-90.55	-19.91	-2,070.27	2,070.37	2,055.48	14.89	139.065	
3,100.00	3,099.99	3,103.39	3,103.39	10.86	10.89	89.84	-19.91	-2,070.27	2,070.36	2,054.98	15.38	134.601	
3,196.79	3,196.70	3,200.00	3,200.00	11.17	11.24	89.95	-19.91	-2,070.27	2,070.35	2,054.51	15.85	130.645	CC
3,200.00	3,199.91	3,200.00	3,200.00	11.18	11.24	89.95	-19.91	-2,070.27	2,070.36	2,054.50	15.85	130.585	ES
3,300.00	3,299.69	3,268.11	3,268.11	11.51	11.47	90.05	-20.11	-2,070.84	2,071.23	2,054.98	16.25	127.470	
3,400.00	3,399.27	3,333.93	3,333.90	11.84	11.70	90.16	-20.67	-2,072.49	2,073.76	2,057.13	16.63	124.676	
3,500.00	3,498.57	3,400.00	3,399.91	12.17	11.92	90.29	-21.61	-2,075.22	2,077.96	2,060.95	17.02	122.124	
3,533.06	3,531.33	3,421.23	3,421.11	12.28	11.99	90.33	-21.99	-2,076.33	2,079.72	2,062.58	17.14	121.338	
3,600.00	3,597.62	3,465.05	3,464.84	12.50	12.14	90.48	-22.89	-2,078.97	2,083.84	2,066.45	17.39	119.797	
3,700.00	3,696.65	3,530.47	3,530.05	12.85	12.36	90.68	-24.54	-2,083.78	2,091.39	2,073.61	17.78	117.655	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
3,800.00	3,795.68	3,600.00	3,599.27	13.19	12.60	90.88	-26.69	-2,090.06	2,100.59	2,082.43	18.17	115.616		
3,900.00	3,894.70	3,660.97	3,659.85	13.54	12.81	91.05	-28.92	-2,096.55	2,111.42	2,092.89	18.54	113.913		
4,000.00	3,993.73	3,725.99	3,724.32	13.90	13.04	91.22	-31.63	-2,104.48	2,123.89	2,104.97	18.91	112.294		
4,100.00	4,092.76	3,800.00	3,797.54	14.26	13.30	91.40	-35.15	-2,114.76	2,137.98	2,118.66	19.32	110.654		
4,149.39	4,141.67	3,822.72	3,819.96	14.44	13.38	91.45	-36.33	-2,118.18	2,145.49	2,126.02	19.48	110.164		
4,200.00	4,191.83	3,855.38	3,852.17	14.62	13.50	91.64	-38.09	-2,123.33	2,153.61	2,133.94	19.66	109.518		
4,300.00	4,291.19	3,919.78	3,915.53	14.98	13.73	91.98	-41.83	-2,134.24	2,170.76	2,150.73	20.03	108.361		
4,400.00	4,390.81	4,000.00	3,994.16	15.34	14.02	92.30	-46.97	-2,149.23	2,189.47	2,169.02	20.45	107.043		
4,500.00	4,490.62	4,047.65	4,040.71	15.69	14.20	92.57	-50.27	-2,158.88	2,209.42	2,188.68	20.75	106.497		
4,600.00	4,590.56	4,100.00	4,091.70	16.04	14.40	92.84	-54.12	-2,170.11	2,230.92	2,209.87	21.05	106.006		
4,682.45	4,673.00	4,162.64	4,152.49	16.32	14.64	-87.35	-59.03	-2,184.42	2,249.61	2,228.24	21.37	105.281		
4,700.00	4,690.55	4,173.60	4,163.09	16.38	14.69	-87.38	-59.92	-2,187.01	2,253.72	2,232.29	21.43	105.183		
4,800.00	4,790.55	4,235.71	4,223.07	16.73	14.93	-87.54	-65.15	-2,202.29	2,278.02	2,256.27	21.76	104.690		
4,900.00	4,890.55	4,300.00	4,284.86	17.08	15.19	-87.70	-70.90	-2,219.07	2,303.83	2,281.74	22.10	104.250		
5,000.00	4,990.55	4,358.25	4,340.58	17.43	15.44	-87.86	-76.40	-2,235.12	2,331.12	2,308.71	22.41	104.025		
5,100.00	5,090.55	4,441.30	4,419.72	17.78	15.80	-88.09	-84.57	-2,258.95	2,359.59	2,336.76	22.83	103.350		
5,200.00	5,190.55	4,536.57	4,510.49	18.13	16.22	-88.35	-93.95	-2,286.34	2,388.18	2,364.87	23.31	102.444		
5,300.00	5,290.55	4,631.84	4,601.25	18.48	16.65	-88.60	-103.34	-2,313.73	2,416.82	2,393.03	23.80	101.565		
5,400.00	5,390.55	4,727.11	4,692.01	18.83	17.09	-88.84	-112.73	-2,341.12	2,445.51	2,421.22	24.28	100.713		
5,500.00	5,490.55	4,822.38	4,782.77	19.19	17.55	-89.08	-122.11	-2,368.52	2,474.23	2,449.46	24.77	99.886		
5,600.00	5,590.55	4,917.65	4,873.54	19.54	18.00	-89.32	-131.50	-2,395.91	2,502.99	2,477.73	25.26	99.085		
5,700.00	5,690.55	5,012.92	4,964.30	19.89	18.47	-89.55	-140.89	-2,423.30	2,531.79	2,506.04	25.75	98.308		
5,800.00	5,790.55	5,108.19	5,055.06	20.24	18.95	-89.77	-150.27	-2,450.69	2,560.63	2,534.38	26.25	97.555		
5,900.00	5,890.55	5,203.46	5,145.83	20.59	19.43	-89.99	-159.66	-2,478.08	2,589.50	2,562.76	26.74	96.825		
6,000.00	5,990.55	5,298.73	5,236.59	20.95	19.91	-90.21	-169.04	-2,505.47	2,618.41	2,591.17	27.24	96.117		
6,100.00	6,090.55	5,394.00	5,327.35	21.30	20.41	-90.42	-178.43	-2,532.86	2,647.35	2,619.61	27.74	95.431		
6,200.00	6,190.55	5,489.27	5,418.11	21.65	20.91	-90.62	-187.82	-2,560.25	2,676.33	2,648.08	28.24	94.765		
6,300.00	6,290.55	5,584.54	5,508.88	22.00	21.41	-90.82	-197.20	-2,587.65	2,705.33	2,676.59	28.74	94.119		
6,400.00	6,390.55	5,679.81	5,599.64	22.36	21.92	-91.02	-206.59	-2,615.04	2,734.36	2,705.12	29.25	93.493		
6,500.00	6,490.55	5,775.07	5,690.40	22.71	22.43	-91.21	-215.98	-2,642.43	2,763.43	2,733.68	29.75	92.885		
6,600.00	6,590.55	5,870.34	5,781.17	23.06	22.95	-91.40	-225.36	-2,669.82	2,792.52	2,762.26	30.26	92.295		
6,700.00	6,690.55	5,965.61	5,871.93	23.42	23.47	-91.59	-234.75	-2,697.21	2,821.64	2,790.88	30.76	91.722		
6,800.00	6,790.55	6,060.88	5,962.69	23.77	23.99	-91.77	-244.14	-2,724.60	2,850.79	2,819.52	31.27	91.166		
6,900.00	6,890.55	6,156.15	6,053.45	24.13	24.52	-91.95	-253.52	-2,751.99	2,879.96	2,848.18	31.78	90.626		
7,000.00	6,990.55	6,251.42	6,144.22	24.48	25.05	-92.12	-262.91	-2,779.38	2,909.15	2,876.87	32.29	90.101		
7,100.00	7,090.55	6,346.69	6,234.98	24.83	25.58	-92.29	-272.30	-2,806.78	2,938.38	2,905.58	32.80	89.591		
7,200.00	7,190.55	6,441.96	6,325.74	25.19	26.11	-92.46	-281.68	-2,834.17	2,967.62	2,934.31	33.31	89.095		
7,300.00	7,290.55	6,537.23	6,416.51	25.54	26.65	-92.62	-291.07	-2,861.56	2,996.89	2,963.07	33.82	88.614		
7,400.00	7,390.55	6,632.50	6,506.65	25.90	27.19	-92.78	-300.46	-2,888.95	3,026.16	2,991.34	34.33	88.133		
7,500.00	7,490.55	6,727.77	6,591.90	26.25	27.73	-92.94	-309.85	-2,916.04	3,055.45	3,020.63	34.84	87.652		
7,600.00	7,590.55	6,823.04	6,687.17	26.61	28.27	-93.10	-319.24	-2,943.13	3,084.74	3,049.92	35.35	87.171		
7,700.00	7,690.55	6,918.31	6,782.44	26.96	28.81	-93.26	-328.63	-2,970.22	3,114.03	3,079.21	35.86	86.690		
7,800.00	7,790.55	7,013.58	6,877.71	27.32	29.35	-93.42	-338.02	-2,997.31	3,143.32	3,108.50	36.37	86.209		
7,900.00	7,890.55	7,108.85	6,973.00	27.67	29.89	-93.58	-347.41	-3,024.40	3,172.61	3,137.79	36.88	85.728		
8,000.00	7,990.55	7,204.12	7,068.27	28.03	30.43	-93.74	-356.80	-3,051.49	3,201.90	3,167.08	37.39	85.247		
8,100.00	8,090.55	7,299.39	7,163.54	28.38	30.97	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		
8,117.49	8,108.04	8,250.95	8,111.44	28.44	31.00	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		
8,150.00	8,140.53	8,283.45	8,143.93	28.56	31.12	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		
8,200.00	8,190.27	8,333.18	8,193.67	28.73	31.59	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		
8,250.00	8,239.37	8,378.11	8,238.59	28.91	31.72	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		
8,300.00	8,287.48	8,417.42	8,277.82	29.09	31.85	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		
8,350.00	8,334.22	8,457.19	8,317.23	29.27	31.97	-93.89	-366.19	-3,078.58	3,231.19	3,196.37	37.90	84.766		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,400.00	8,379.24	8,500.00	8,359.14	29.46	34.11	87.98	-366.55	-3,033.10	3,038.01	2,995.77	42.24	71.925		
8,450.00	8,422.20	8,538.32	8,396.02	29.66	34.24	88.22	-376.96	-3,033.00	3,037.55	2,995.06	42.49	71.488		
8,500.00	8,462.76	8,579.82	8,435.07	29.86	34.38	88.47	-390.98	-3,032.86	3,037.13	2,994.38	42.76	71.033		
8,550.00	8,500.63	8,622.05	8,473.65	30.07	34.53	88.74	-408.11	-3,032.69	3,036.76	2,993.73	43.03	70.567		
8,600.00	8,535.51	8,665.09	8,511.57	30.28	34.69	89.02	-428.44	-3,032.49	3,036.45	2,993.12	43.32	70.090		
8,650.00	8,567.13	8,709.03	8,548.61	30.51	34.85	89.30	-452.08	-3,032.25	3,036.20	2,992.57	43.62	69.600		
8,700.00	8,595.26	8,753.99	8,584.50	30.75	35.01	89.59	-479.13	-3,031.98	3,036.03	2,992.09	43.94	69.095		
8,750.00	8,619.68	8,800.00	8,618.93	30.99	35.19	89.89	-509.63	-3,031.67	3,035.94	2,991.67	44.27	68.577		
8,774.49	8,630.23	8,823.08	8,635.25	31.12	35.27	90.03	-525.95	-3,031.51	3,035.93	2,991.48	44.44	68.314		
8,800.00	8,640.21	8,847.39	8,651.71	31.25	35.37	90.19	-543.83	-3,031.33	3,035.94	2,991.32	44.62	68.042		
8,850.00	8,656.69	8,896.09	8,682.34	31.52	35.56	90.49	-581.67	-3,030.95	3,036.03	2,991.05	44.98	67.493		
8,900.00	8,668.99	8,946.31	8,710.44	31.80	35.76	90.79	-623.27	-3,030.54	3,036.22	2,990.86	45.36	66.930		
8,950.00	8,677.03	8,998.19	8,735.53	32.09	35.99	91.09	-668.66	-3,030.08	3,036.50	2,990.74	45.76	66.354		
9,000.00	8,680.73	9,051.89	8,757.06	32.38	36.23	91.39	-717.84	-3,029.59	3,036.87	2,990.69	46.18	65.767		
9,017.49	8,681.00	9,071.14	8,763.65	32.49	36.32	91.50	-735.92	-3,029.41	3,037.02	2,990.69	46.33	65.559		
9,100.00	8,681.00	9,166.92	8,787.20	33.00	36.79	91.94	-828.64	-3,028.49	3,037.63	2,990.55	47.08	64.525		
9,200.00	8,681.00	9,284.49	8,795.00	33.70	37.44	92.09	-945.77	-3,027.32	3,037.83	2,989.75	48.08	63.184		
9,300.00	8,681.00	9,384.49	8,795.00	34.46	38.06	92.09	-1,045.77	-3,026.32	3,037.80	2,988.68	49.12	61.848		
9,400.00	8,681.00	9,484.49	8,795.00	35.28	38.74	92.09	-1,145.76	-3,025.32	3,037.77	2,987.53	50.24	60.466		
9,500.00	8,681.00	9,584.49	8,795.00	36.15	39.48	92.09	-1,245.76	-3,024.32	3,037.74	2,986.30	51.44	59.050		
9,600.00	8,681.00	9,684.49	8,795.00	37.08	40.28	92.09	-1,345.75	-3,023.32	3,037.72	2,984.99	52.72	57.616		
9,700.00	8,681.00	9,784.49	8,795.00	38.06	41.13	92.09	-1,445.75	-3,022.32	3,037.69	2,983.62	54.07	56.176		
9,800.00	8,681.00	9,884.49	8,795.00	39.08	42.04	92.09	-1,545.74	-3,021.32	3,037.66	2,982.17	55.49	54.742		
9,900.00	8,681.00	9,984.49	8,795.00	40.15	42.99	92.09	-1,645.74	-3,020.32	3,037.64	2,980.67	56.97	53.324		
10,000.00	8,681.00	10,084.49	8,795.00	41.25	43.98	92.09	-1,745.73	-3,019.32	3,037.61	2,979.11	58.50	51.927		
10,100.00	8,681.00	10,184.49	8,795.00	42.39	45.01	92.09	-1,845.73	-3,018.32	3,037.58	2,977.50	60.08	50.558		
10,200.00	8,681.00	10,284.49	8,795.00	43.56	46.09	92.09	-1,945.72	-3,017.32	3,037.55	2,975.84	61.71	49.221		
10,300.00	8,681.00	10,384.49	8,795.00	44.77	47.19	92.09	-2,045.72	-3,016.32	3,037.53	2,974.14	63.39	47.920		
10,400.00	8,681.00	10,484.49	8,795.00	46.00	48.33	92.09	-2,145.71	-3,015.32	3,037.50	2,972.40	65.10	46.656		
10,500.00	8,681.00	10,584.49	8,795.00	47.25	49.50	92.09	-2,245.71	-3,014.32	3,037.47	2,970.62	66.86	45.432		
10,600.00	8,681.00	10,684.49	8,795.00	48.53	50.69	92.09	-2,345.70	-3,013.32	3,037.45	2,968.80	68.65	44.248		
10,700.00	8,681.00	10,784.49	8,795.00	49.83	51.91	92.09	-2,445.70	-3,012.32	3,037.42	2,966.95	70.47	43.105		
10,800.00	8,681.00	10,884.49	8,795.00	51.16	53.16	92.09	-2,545.69	-3,011.33	3,037.39	2,965.08	72.31	42.002		
10,900.00	8,681.00	10,984.49	8,795.00	52.50	54.43	92.09	-2,645.69	-3,010.33	3,037.36	2,963.17	74.19	40.939		
11,000.00	8,681.00	11,084.49	8,795.00	53.86	55.71	92.09	-2,745.68	-3,009.33	3,037.34	2,961.24	76.09	39.916		
11,100.00	8,681.00	11,184.49	8,795.00	55.23	57.02	92.09	-2,845.68	-3,008.33	3,037.31	2,959.29	78.02	38.930		
11,200.00	8,681.00	11,284.49	8,795.00	56.62	58.34	92.09	-2,945.67	-3,007.33	3,037.28	2,957.32	79.97	37.982		
11,300.00	8,681.00	11,384.49	8,795.00	58.02	59.69	92.09	-3,045.67	-3,006.33	3,037.26	2,955.32	81.93	37.069		
11,400.00	8,681.00	11,484.49	8,795.00	59.44	61.04	92.09	-3,145.66	-3,005.33	3,037.23	2,953.31	83.92	36.191		
11,500.00	8,681.00	11,584.49	8,795.00	60.86	62.41	92.09	-3,245.66	-3,004.33	3,037.20	2,951.28	85.93	35.347		
11,600.00	8,681.00	11,684.49	8,795.00	62.30	63.80	92.09	-3,345.65	-3,003.33	3,037.18	2,949.23	87.95	34.535		
11,700.00	8,681.00	11,784.49	8,795.00	63.75	65.19	92.09	-3,445.65	-3,002.33	3,037.15	2,947.17	89.98	33.753		
11,800.00	8,681.00	11,884.49	8,795.00	65.21	66.60	92.09	-3,545.64	-3,001.33	3,037.12	2,945.09	92.03	33.001		
11,900.00	8,681.00	11,984.49	8,795.00	66.68	68.02	92.09	-3,645.64	-3,000.33	3,037.09	2,943.00	94.09	32.277		
12,000.00	8,681.00	12,084.49	8,795.00	68.15	69.45	92.09	-3,745.63	-2,999.33	3,037.07	2,940.90	96.17	31.581		
12,100.00	8,681.00	12,184.49	8,795.00	69.63	70.89	92.09	-3,845.63	-2,998.33	3,037.04	2,938.78	98.26	30.909		
12,200.00	8,681.00	12,284.49	8,795.00	71.13	72.34	92.09	-3,945.62	-2,997.34	3,037.01	2,936.66	100.35	30.263		
12,300.00	8,681.00	12,384.49	8,795.00	72.62	73.80	92.09	-4,045.62	-2,996.34	3,036.99	2,934.52	102.46	29.640		
12,400.00	8,681.00	12,484.49	8,795.00	74.13	75.27	92.09	-4,145.61	-2,995.34	3,036.96	2,932.38	104.58	29.040		
12,500.00	8,681.00	12,584.49	8,795.00	75.64	76.74	92.09	-4,245.61	-2,994.34	3,036.93	2,930.22	106.71	28.461		
12,600.00	8,681.00	12,684.49	8,795.00	77.15	78.22	92.09	-4,345.60	-2,993.34	3,036.90	2,928.06	108.84	27.902		
12,700.00	8,681.00	12,784.49	8,795.00	78.68	79.71	92.09	-4,445.60	-2,992.34	3,036.88	2,925.89	110.98	27.363		

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
12,800.00	8,681.00	12,884.49	8,795.00	80.20	81.20	92.09	-4,545.59	-2,991.34	3,036.85	2,923.71	113.14	26.843		
12,900.00	8,681.00	12,984.49	8,795.00	81.74	82.70	92.09	-4,645.59	-2,990.34	3,036.82	2,921.53	115.29	26.340		
13,000.00	8,681.00	13,084.49	8,795.00	83.27	84.21	92.09	-4,745.58	-2,989.34	3,036.80	2,919.34	117.46	25.854		
13,100.00	8,681.00	13,184.49	8,795.00	84.81	85.72	92.09	-4,845.58	-2,988.34	3,036.77	2,917.14	119.63	25.385		
13,200.00	8,681.00	13,284.49	8,795.00	86.36	87.23	92.09	-4,945.57	-2,987.34	3,036.74	2,914.93	121.81	24.931		
13,300.00	8,681.00	13,384.49	8,795.00	87.91	88.75	92.09	-5,045.57	-2,986.34	3,036.71	2,912.72	123.99	24.492		
13,400.00	8,681.00	13,484.49	8,795.00	89.46	90.28	92.09	-5,145.56	-2,985.34	3,036.69	2,910.51	126.18	24.067		
13,500.00	8,681.00	13,584.49	8,795.00	91.01	91.81	92.09	-5,245.56	-2,984.34	3,036.66	2,908.29	128.37	23.655		
13,600.00	8,681.00	13,684.49	8,795.00	92.57	93.34	92.09	-5,345.55	-2,983.34	3,036.63	2,906.06	130.57	23.257		
13,700.00	8,681.00	13,784.49	8,795.00	94.13	94.88	92.09	-5,445.55	-2,982.35	3,036.61	2,903.83	132.77	22.871		
13,800.00	8,681.00	13,884.49	8,795.00	95.70	96.42	92.09	-5,545.54	-2,981.35	3,036.58	2,901.60	134.98	22.497		
13,900.00	8,681.00	13,984.49	8,795.00	97.27	97.97	92.09	-5,645.54	-2,980.35	3,036.55	2,899.36	137.19	22.134		
14,000.00	8,681.00	14,084.49	8,795.00	98.84	99.52	92.09	-5,745.53	-2,979.35	3,036.52	2,897.12	139.41	21.782		
14,100.00	8,681.00	14,184.49	8,795.00	100.41	101.07	92.09	-5,845.53	-2,978.35	3,036.50	2,894.87	141.63	21.440		
14,200.00	8,681.00	14,284.49	8,795.00	101.99	102.63	92.09	-5,945.52	-2,977.35	3,036.47	2,892.62	143.85	21.109		
14,300.00	8,681.00	14,384.49	8,795.00	103.57	104.18	92.09	-6,045.52	-2,976.35	3,036.44	2,890.37	146.08	20.787		
14,400.00	8,681.00	14,484.49	8,795.00	105.15	105.74	92.09	-6,145.51	-2,975.35	3,036.42	2,888.11	148.31	20.474		
14,500.00	8,681.00	14,584.49	8,795.00	106.73	107.31	92.09	-6,245.51	-2,974.35	3,036.39	2,885.85	150.54	20.170		
14,600.00	8,681.00	14,684.49	8,795.00	108.31	108.87	92.09	-6,345.50	-2,973.35	3,036.36	2,883.59	152.77	19.875		
14,700.00	8,681.00	14,784.49	8,795.00	109.90	110.44	92.09	-6,445.50	-2,972.35	3,036.33	2,881.32	155.01	19.588		
14,800.00	8,681.00	14,884.49	8,795.00	111.49	112.01	92.09	-6,545.49	-2,971.35	3,036.31	2,879.05	157.26	19.308		
14,900.00	8,681.00	14,984.49	8,795.00	113.08	113.59	92.09	-6,645.49	-2,970.35	3,036.28	2,876.78	159.50	19.036		
15,000.00	8,681.00	15,084.49	8,795.00	114.67	115.16	92.09	-6,745.48	-2,969.35	3,036.25	2,874.51	161.75	18.772		
15,100.00	8,681.00	15,184.49	8,795.00	116.27	116.74	92.09	-6,845.48	-2,968.35	3,036.23	2,872.23	164.00	18.514		
15,200.00	8,681.00	15,284.49	8,795.00	117.86	118.32	92.09	-6,945.47	-2,967.36	3,036.20	2,869.95	166.25	18.263		
15,300.00	8,681.00	15,384.49	8,795.00	119.46	119.90	92.09	-7,045.47	-2,966.36	3,036.17	2,867.67	168.50	18.019		
15,400.00	8,681.00	15,484.49	8,795.00	121.06	121.49	92.09	-7,145.46	-2,965.36	3,036.15	2,865.39	170.76	17.780		
15,500.00	8,681.00	15,584.49	8,795.00	122.66	123.07	92.09	-7,245.46	-2,964.36	3,036.12	2,863.10	173.02	17.548		
15,600.00	8,681.00	15,684.49	8,795.00	124.26	124.66	92.09	-7,345.45	-2,963.36	3,036.09	2,860.82	175.28	17.322		
15,700.00	8,681.00	15,784.49	8,795.00	125.86	126.25	92.09	-7,445.45	-2,962.36	3,036.06	2,858.53	177.54	17.101		
15,800.00	8,681.00	15,884.49	8,795.00	127.46	127.84	92.09	-7,545.44	-2,961.36	3,036.04	2,856.24	179.80	16.885		
15,900.00	8,681.00	15,984.49	8,795.00	129.07	129.43	92.09	-7,645.44	-2,960.36	3,036.01	2,853.94	182.07	16.675		
16,000.00	8,681.00	16,084.49	8,795.00	130.67	131.02	92.09	-7,745.43	-2,959.36	3,035.98	2,851.65	184.33	16.470		
16,100.00	8,681.00	16,184.49	8,795.00	132.28	132.62	92.09	-7,845.43	-2,958.36	3,035.96	2,849.35	186.60	16.270		
16,200.00	8,681.00	16,284.49	8,795.00	133.89	134.22	92.09	-7,945.42	-2,957.36	3,035.93	2,847.05	188.87	16.074		
16,300.00	8,681.00	16,384.49	8,795.00	135.50	135.81	92.09	-8,045.42	-2,956.36	3,035.90	2,844.75	191.15	15.883		
16,400.00	8,681.00	16,484.49	8,795.00	137.11	137.41	92.09	-8,145.41	-2,955.36	3,035.87	2,842.45	193.42	15.696		
16,500.00	8,681.00	16,584.49	8,795.00	138.72	139.01	92.09	-8,245.41	-2,954.36	3,035.85	2,840.15	195.70	15.513		
16,600.00	8,681.00	16,684.49	8,795.00	140.33	140.61	92.09	-8,345.40	-2,953.36	3,035.82	2,837.85	197.97	15.335		
16,700.00	8,681.00	16,784.49	8,795.00	141.95	142.22	92.09	-8,445.40	-2,952.37	3,035.79	2,835.54	200.25	15.160		
16,800.00	8,681.00	16,884.49	8,795.00	143.56	143.82	92.09	-8,545.39	-2,951.37	3,035.77	2,833.24	202.53	14.989		
16,900.00	8,681.00	16,984.49	8,795.00	145.17	145.42	92.09	-8,645.39	-2,950.37	3,035.74	2,830.93	204.81	14.822		
17,000.00	8,681.00	17,084.49	8,795.00	146.79	147.03	92.09	-8,745.38	-2,949.37	3,035.71	2,828.62	207.09	14.659		
17,100.00	8,681.00	17,184.49	8,795.00	148.41	148.64	92.09	-8,845.38	-2,948.37	3,035.68	2,826.31	209.37	14.499		
17,200.00	8,681.00	17,284.49	8,795.00	150.02	150.24	92.09	-8,945.37	-2,947.37	3,035.66	2,824.00	211.66	14.342		
17,300.00	8,681.00	17,384.49	8,795.00	151.64	151.85	92.09	-9,045.37	-2,946.37	3,035.63	2,821.69	213.94	14.189		
17,400.00	8,681.00	17,484.49	8,795.00	153.26	153.46	92.09	-9,145.36	-2,945.37	3,035.60	2,819.38	216.23	14.039		
17,500.00	8,681.00	17,584.49	8,795.00	154.88	155.07	92.09	-9,245.36	-2,944.37	3,035.58	2,817.06	218.51	13.892		
17,600.00	8,681.00	17,684.49	8,795.00	156.50	156.68	92.09	-9,345.35	-2,943.37	3,035.55	2,814.75	220.80	13.748		
17,700.00	8,681.00	17,784.49	8,795.00	158.12	158.30	92.09	-9,445.35	-2,942.37	3,035.52	2,812.43	223.09	13.607		
17,800.00	8,681.00	17,884.49	8,795.00	159.74	159.91	92.09	-9,545.34	-2,941.37	3,035.49	2,810.11	225.38	13.468		
17,900.00	8,681.00	17,984.49	8,795.00	161.36	161.52	92.09	-9,645.34	-2,940.37	3,035.47	2,807.80	227.67	13.333		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Tatanka Fed Com - Tatanka Fed Com 101H - OH - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
18,000.00	8,681.00	18,084.49	8,795.00	162.99	163.14	92.09	-9,745.33	-2,939.37	3,035.44	2,805.48	229.96	13.200	
18,100.00	8,681.00	18,184.49	8,795.00	164.61	164.75	92.09	-9,845.33	-2,938.38	3,035.41	2,803.16	232.26	13.069	
18,200.00	8,681.00	18,284.49	8,795.00	166.23	166.37	92.09	-9,945.32	-2,937.38	3,035.39	2,800.84	234.55	12.941	
18,300.00	8,681.00	18,384.49	8,795.00	167.86	167.98	92.09	-10,045.32	-2,936.38	3,035.36	2,798.52	236.84	12.816	
18,400.00	8,681.00	18,484.49	8,795.00	169.48	169.60	92.09	-10,145.31	-2,935.38	3,035.33	2,796.19	239.14	12.693	
18,500.00	8,681.00	18,584.49	8,795.00	171.11	171.22	92.09	-10,245.31	-2,934.38	3,035.30	2,793.87	241.43	12.572	
18,600.00	8,681.00	18,684.49	8,795.00	172.73	172.84	92.09	-10,345.30	-2,933.38	3,035.28	2,791.55	243.73	12.453	
18,678.67	8,681.00	18,762.37	8,795.00	174.01	174.10	92.09	-10,423.18	-2,932.60	3,035.26	2,789.73	245.53	12.362	
18,681.03	8,681.00	18,762.37	8,795.00	174.05	174.10	92.09	-10,423.18	-2,932.60	3,035.26	2,789.69	245.57	12.360 SF	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	2.70	2.70	0.00	0.00	-90.55	-19.68	-2,045.28	2,045.37					
100.00	100.00	102.70	102.70	0.13	0.14	-90.55	-19.68	-2,045.28	2,045.37	2,045.19	0.18	N/A		
200.00	200.00	202.70	202.70	0.48	0.49	-90.55	-19.68	-2,045.28	2,045.37	2,044.68	0.69	2,958.875		
300.00	300.00	302.70	302.70	0.84	0.85	-90.55	-19.68	-2,045.28	2,045.37	2,044.18	1.20	1,707.027		
400.00	400.00	402.70	402.70	1.20	1.21	-90.55	-19.68	-2,045.28	2,045.37	2,043.67	1.71	1,199.522		
500.00	500.00	502.70	502.70	1.56	1.57	-90.55	-19.68	-2,045.28	2,045.37	2,043.16	2.21	924.626		
600.00	600.00	602.70	602.70	1.92	1.93	-90.55	-19.68	-2,045.28	2,045.37	2,042.66	2.72	752.235		
700.00	700.00	702.70	702.70	2.28	2.29	-90.55	-19.68	-2,045.28	2,045.37	2,042.15	3.23	634.025		
800.00	800.00	802.70	802.70	2.63	2.64	-90.55	-19.68	-2,045.28	2,045.37	2,041.64	3.73	547.921		
900.00	900.00	902.70	902.70	2.99	3.00	-90.55	-19.68	-2,045.28	2,045.37	2,041.13	4.24	482.408		
1,000.00	1,000.00	1,002.70	1,002.70	3.35	3.36	-90.55	-19.68	-2,045.28	2,045.37	2,040.63	4.75	430.888		
1,100.00	1,100.00	1,102.70	1,102.70	3.71	3.72	-90.55	-19.68	-2,045.28	2,045.37	2,040.12	5.25	389.311		
1,200.00	1,200.00	1,202.70	1,202.70	4.07	4.08	-90.55	-19.68	-2,045.28	2,045.37	2,039.61	5.76	355.051		
1,300.00	1,300.00	1,302.70	1,302.70	4.43	4.44	-90.55	-19.68	-2,045.28	2,045.37	2,039.11	6.27	326.333		
1,400.00	1,400.00	1,402.70	1,402.70	4.79	4.80	-90.55	-19.68	-2,045.28	2,045.37	2,038.60	6.77	301.914		
1,500.00	1,500.00	1,502.70	1,502.70	5.14	5.15	-90.55	-19.68	-2,045.28	2,045.37	2,038.09	7.28	280.894		
1,600.00	1,600.00	1,602.70	1,602.70	5.50	5.51	-90.55	-19.68	-2,045.28	2,045.37	2,037.59	7.79	262.611		
1,700.00	1,700.00	1,702.70	1,702.70	5.86	5.87	-90.55	-19.68	-2,045.28	2,045.37	2,037.08	8.30	246.562		
1,800.00	1,800.00	1,802.70	1,802.70	6.22	6.23	-90.55	-19.68	-2,045.28	2,045.37	2,036.57	8.80	232.362		
1,900.00	1,900.00	1,902.70	1,902.70	6.58	6.59	-90.55	-19.68	-2,045.28	2,045.37	2,036.07	9.31	219.709		
2,000.00	2,000.00	2,002.70	2,002.70	6.94	6.95	-90.55	-19.68	-2,045.28	2,045.37	2,035.56	9.82	208.362		
2,100.00	2,100.00	2,102.70	2,102.70	7.29	7.30	-90.55	-19.68	-2,045.28	2,045.37	2,035.05	10.32	198.130		
2,200.00	2,200.00	2,202.70	2,202.70	7.65	7.66	-90.55	-19.68	-2,045.28	2,045.37	2,034.54	10.83	188.856		
2,300.00	2,300.00	2,302.70	2,302.70	8.01	8.02	-90.55	-19.68	-2,045.28	2,045.37	2,034.04	11.34	180.411		
2,400.00	2,400.00	2,402.70	2,402.70	8.37	8.38	-90.55	-19.68	-2,045.28	2,045.37	2,033.53	11.84	172.689		
2,500.00	2,500.00	2,502.70	2,502.70	8.73	8.74	-90.55	-19.68	-2,045.28	2,045.37	2,033.02	12.35	165.601		
2,600.00	2,600.00	2,602.70	2,602.70	9.09	9.10	-90.55	-19.68	-2,045.28	2,045.37	2,032.52	12.86	159.072		
2,700.00	2,700.00	2,702.70	2,702.70	9.45	9.46	-90.55	-19.68	-2,045.28	2,045.37	2,032.01	13.37	153.038		
2,800.00	2,800.00	2,802.70	2,802.70	9.80	9.81	-90.55	-19.68	-2,045.28	2,045.37	2,031.50	13.87	147.445		
2,900.00	2,900.00	2,902.70	2,902.70	10.16	10.17	-90.55	-19.68	-2,045.28	2,045.37	2,031.00	14.38	142.247		
3,000.00	3,000.00	3,002.70	3,002.70	10.52	10.53	-90.55	-19.68	-2,045.28	2,045.37	2,030.49	14.89	137.403		
3,100.00	3,099.99	3,102.69	3,102.69	10.86	10.89	89.84	-19.68	-2,045.28	2,045.37	2,029.99	15.38	132.992		
3,200.00	3,199.91	3,202.60	3,202.60	11.18	11.25	89.95	-19.68	-2,045.28	2,045.36	2,029.50	15.86	128.958		
3,212.88	3,212.77	3,215.42	3,215.42	11.23	11.29	89.97	-19.71	-2,045.28	2,045.36	2,029.44	15.92	128.469		
3,300.00	3,299.69	3,302.16	3,302.14	11.51	11.59	90.10	-21.05	-2,045.28	2,045.37	2,029.05	16.33	125.259		
3,400.00	3,399.27	3,401.85	3,401.75	11.84	11.91	90.24	-25.01	-2,045.28	2,045.41	2,028.63	16.79	121.838		
3,500.00	3,498.57	3,501.67	3,501.36	12.17	12.23	90.39	-31.59	-2,045.28	2,045.48	2,028.23	17.25	118.571		
3,533.06	3,531.33	3,534.71	3,534.28	12.28	12.34	90.43	-34.33	-2,045.28	2,045.51	2,028.11	17.41	117.520		
3,600.00	3,597.62	3,601.66	3,600.92	12.50	12.56	90.51	-40.78	-2,045.28	2,045.58	2,027.86	17.72	115.438		
3,700.00	3,696.65	3,701.82	3,700.37	12.85	12.89	90.57	-52.60	-2,045.28	2,045.67	2,027.48	18.20	112.424		
3,800.00	3,795.68	3,850.85	3,848.11	13.19	13.39	90.61	-72.09	-2,043.87	2,044.94	2,026.15	18.79	108.820		
3,900.00	3,894.70	4,021.84	4,017.98	13.54	13.98	90.77	-90.23	-2,036.78	2,040.89	2,021.46	19.43	105.027		
4,000.00	3,993.73	4,191.69	4,186.80	13.90	14.57	91.06	-103.50	-2,023.83	2,033.40	2,013.34	20.06	101.376		
4,100.00	4,092.76	4,359.75	4,353.60	14.26	15.16	91.49	-111.94	-2,005.26	2,022.53	2,001.87	20.66	97.874		
4,149.39	4,141.67	4,441.90	4,434.96	14.44	15.45	91.76	-114.36	-1,994.11	2,015.95	1,994.99	20.96	96.200		
4,200.00	4,191.83	4,525.48	4,517.54	14.62	15.76	91.93	-115.67	-1,981.37	2,008.38	1,987.13	21.25	94.521		
4,300.00	4,291.19	4,624.73	4,615.49	14.98	16.12	92.00	-116.50	-1,965.37	1,992.52	1,970.78	21.74	91.644		
4,400.00	4,390.81	4,723.12	4,712.59	15.34	16.48	91.99	-117.33	-1,949.49	1,976.62	1,954.39	22.23	88.900		
4,500.00	4,490.62	4,821.68	4,809.85	15.69	16.84	91.91	-118.15	-1,933.60	1,960.65	1,937.93	22.72	86.280		
4,600.00	4,590.56	4,920.33	4,907.21	16.04	17.21	91.76	-118.97	-1,917.68	1,944.61	1,921.40	23.21	83.775		
4,682.45	4,673.00	5,001.70	4,987.51	16.32	17.52	-88.79	-119.65	-1,904.56	1,931.32	1,907.71	23.61	81.785		
4,700.00	4,690.55	5,019.02	5,004.61	16.38	17.59	-88.79	-119.80	-1,901.76	1,928.49	1,904.79	23.70	81.368		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,800.00	4,790.55	5,117.71	5,102.00	16.73	17.96	-88.80	-120.62	-1,885.84	1,912.34	1,888.15	24.19	79.051		
4,900.00	4,890.55	5,216.40	5,199.39	17.08	18.34	-88.82	-121.45	-1,869.92	1,896.20	1,871.51	24.68	76.822		
5,000.00	4,990.55	5,315.08	5,296.78	17.43	18.72	-88.83	-122.27	-1,854.01	1,880.05	1,854.88	25.18	74.678		
5,100.00	5,090.55	5,413.77	5,394.17	17.78	19.11	-88.85	-123.10	-1,838.09	1,863.91	1,838.24	25.67	72.613		
5,200.00	5,190.55	5,512.46	5,491.56	18.13	19.49	-88.87	-123.92	-1,822.17	1,847.76	1,821.60	26.16	70.625		
5,300.00	5,290.55	5,611.14	5,588.95	18.48	19.88	-88.88	-124.75	-1,806.25	1,831.62	1,804.96	26.66	68.708		
5,400.00	5,390.55	5,709.83	5,686.34	18.83	20.27	-88.90	-125.57	-1,790.33	1,815.47	1,788.32	27.15	66.859		
5,500.00	5,490.55	5,808.52	5,783.74	19.19	20.67	-88.92	-126.40	-1,774.41	1,799.33	1,771.68	27.65	65.074		
5,600.00	5,590.55	5,907.20	5,881.13	19.54	21.06	-88.93	-127.22	-1,758.49	1,783.19	1,755.04	28.15	63.352		
5,700.00	5,690.55	6,005.89	5,978.52	19.89	21.46	-88.95	-128.05	-1,742.57	1,767.04	1,738.40	28.65	61.687		
5,800.00	5,790.55	6,104.58	6,075.91	20.24	21.85	-88.97	-128.87	-1,726.65	1,750.90	1,721.76	29.14	60.079		
5,900.00	5,890.55	6,203.27	6,173.30	20.59	22.25	-88.99	-129.69	-1,710.73	1,734.76	1,705.11	29.64	58.523		
6,000.00	5,990.55	6,301.95	6,270.69	20.95	22.65	-89.00	-130.52	-1,694.81	1,718.61	1,688.47	30.14	57.018		
6,100.00	6,090.55	6,400.64	6,368.08	21.30	23.05	-89.02	-131.34	-1,678.90	1,702.47	1,671.83	30.64	55.561		
6,200.00	6,190.55	6,499.33	6,465.47	21.65	23.46	-89.04	-132.17	-1,662.98	1,686.33	1,655.18	31.14	54.150		
6,300.00	6,290.55	6,598.01	6,562.86	22.00	23.86	-89.06	-132.99	-1,647.06	1,670.18	1,638.54	31.64	52.782		
6,400.00	6,390.55	6,696.70	6,660.25	22.36	24.27	-89.08	-133.82	-1,631.14	1,654.04	1,621.90	32.14	51.457		
6,500.00	6,490.55	6,795.39	6,757.64	22.71	24.67	-89.10	-134.64	-1,615.22	1,637.90	1,605.25	32.65	50.171		
6,600.00	6,590.55	6,894.07	6,855.04	23.06	25.08	-89.12	-135.47	-1,599.30	1,621.76	1,588.61	33.15	48.925		
6,700.00	6,690.55	6,992.75	6,945.21	23.42	25.48	-89.14	-136.29	-1,583.38	1,605.67	1,572.02	33.65	47.721		
6,800.00	6,790.55	7,091.44	7,041.18	23.77	25.89	-89.15	-137.12	-1,567.46	1,590.88	1,556.75	34.13	46.613		
6,900.00	6,890.55	7,190.13	7,139.91	24.13	26.30	-89.17	-137.95	-1,551.54	1,577.90	1,543.30	34.61	45.597		
7,000.00	6,990.55	7,288.82	7,238.60	24.48	26.71	-89.18	-138.78	-1,535.62	1,566.75	1,531.68	35.08	44.664		
7,100.00	7,090.55	7,387.51	7,337.29	24.83	27.12	-89.19	-139.61	-1,519.70	1,555.43	1,521.90	35.53	43.832		
7,200.00	7,190.55	7,486.20	7,436.07	25.19	27.53	-89.19	-138.26	-1,503.78	1,549.96	1,513.97	35.98	43.077		
7,300.00	7,290.55	7,584.89	7,534.73	25.54	27.94	-89.20	-138.44	-1,501.89	1,544.37	1,507.97	36.40	42.426		
7,400.00	7,390.55	7,683.58	7,633.41	25.90	28.35	-89.20	-138.60	-1,500.00	1,540.58	1,503.72	36.85	41.805		
7,500.00	7,490.55	7,782.27	7,732.09	26.25	28.76	-89.21	-138.67	-1,500.00	1,538.68	1,501.41	37.27	41.284		
7,569.08	7,559.63	7,805.06	7,756.33	26.50	28.99	-89.21	-138.68	-1,500.00	1,538.43	1,500.86	37.57	40.950		
7,600.00	7,590.55	7,835.97	7,787.25	26.61	29.08	-89.21	-138.68	-1,500.00	1,538.43	1,500.71	37.72	40.783		
7,700.00	7,690.55	7,935.97	7,887.25	26.96	29.43	-89.21	-138.68	-1,500.00	1,538.43	1,500.21	38.22	40.254		
7,800.00	7,790.55	8,035.97	7,985.25	27.32	29.78	-89.21	-138.68	-1,500.00	1,538.43	1,499.71	38.71	39.738		
7,900.00	7,890.55	8,135.97	8,085.25	27.67	30.13	-89.21	-138.68	-1,500.00	1,538.43	1,499.22	39.21	39.235		
8,000.00	7,990.55	8,235.97	8,185.25	28.03	30.48	-89.21	-138.68	-1,500.00	1,538.43	1,498.72	39.71	38.744		
8,100.00	8,090.55	8,335.97	8,285.25	28.38	30.83	-89.21	-138.68	-1,500.00	1,538.43	1,498.22	40.20	38.265		
8,117.49	8,108.04	8,353.46	8,303.74	28.44	30.93	-89.21	-138.68	-1,500.00	1,538.43	1,498.14	40.29	38.183 CC		
8,150.00	8,140.53	8,385.96	8,335.23	28.56	31.03	91.38	-138.68	-1,500.00	1,538.45	1,498.00	40.45	38.032		
8,200.00	8,190.27	8,418.69	8,368.96	28.73	31.13	91.56	-138.68	-1,500.00	1,538.58	1,497.88	40.69	37.808		
8,250.00	8,239.37	8,451.42	8,401.69	28.91	31.23	91.87	-139.10	-1,500.00	1,538.85	1,497.91	40.94	37.584		
8,300.00	8,287.48	8,484.15	8,434.42	29.09	31.33	92.22	-143.77	-1,500.00	1,539.19	1,497.98	41.21	37.354		
8,350.00	8,334.22	8,516.88	8,466.69	29.27	31.43	92.55	-153.81	-1,500.00	1,539.57	1,498.09	41.48	37.120		
8,400.00	8,379.24	8,549.61	8,499.91	29.46	31.53	92.86	-169.43	-1,500.00	1,539.97	1,498.22	41.75	36.884		
8,450.00	8,422.20	8,582.34	8,532.61	29.66	31.63	93.16	-190.77	-1,500.00	1,540.39	1,498.35	42.04	36.643		
8,500.00	8,462.76	8,615.07	8,565.34	29.86	31.73	93.43	-217.90	-1,500.00	1,540.80	1,498.47	42.33	36.399		
8,550.00	8,500.63	8,647.80	8,598.07	30.07	31.83	93.67	-250.77	-1,500.00	1,541.19	1,498.55	42.64	36.148		
8,600.00	8,535.51	8,680.53	8,630.80	30.28	31.93	93.88	-289.22	-1,500.00	1,541.55	1,498.59	42.95	35.890		
8,650.00	8,567.13	8,713.26	8,663.53	30.51	32.03	94.05	-332.95	-1,500.00	1,541.85	1,498.57	43.28	35.622		
8,700.00	8,595.26	8,746.00	8,696.27	30.75	32.13	94.19	-381.52	-1,500.00	1,542.10	1,498.47	43.64	35.340		
8,750.00	8,619.68	8,778.73	8,728.99	30.99	32.23	94.29	-434.37	-1,500.00	1,542.28	1,498.27	44.01	35.045		
8,800.00	8,640.21	8,811.46	8,761.72	31.25	32.33	94.34	-490.79	-1,500.00	1,542.37	1,497.97	44.40	34.735		
8,850.00	8,656.69	8,844.19	8,794.45	31.52	32.43	94.35	-549.98	-1,500.00	1,542.38	1,497.56	44.82	34.412		
8,900.00	8,668.99	8,876.92	8,827.18	31.80	32.53	94.32	-611.06	-1,500.00	1,542.31	1,497.05	45.26	34.076		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 102H - OH - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
8,950.00	8,677.03	9,126.23	8,793.70	32.09	33.27	94.24	-673.11	-1,532.00	1,542.16	1,496.44	45.72	33.731				
9,000.00	8,680.73	9,183.78	8,795.00	32.38	33.59	94.15	-730.63	-1,531.44	1,541.95	1,495.79	46.17	33.399				
9,017.49	8,681.00	9,201.27	8,795.00	32.49	33.69	94.14	-748.11	-1,531.26	1,541.93	1,495.62	46.31	33.294				
9,100.00	8,681.00	9,283.78	8,795.00	33.00	34.20	94.14	-830.62	-1,530.45	1,541.92	1,494.87	47.05	32.774				
9,200.00	8,681.00	9,383.78	8,795.00	33.70	34.88	94.14	-930.62	-1,529.46	1,541.90	1,493.88	48.02	32.108				
9,300.00	8,681.00	9,483.78	8,795.00	34.46	35.62	94.14	-1,030.61	-1,528.47	1,541.89	1,492.80	49.09	31.410				
9,400.00	8,681.00	9,583.78	8,795.00	35.28	36.42	94.14	-1,130.61	-1,527.49	1,541.87	1,491.63	50.24	30.689				
9,500.00	8,681.00	9,683.78	8,795.00	36.15	37.27	94.14	-1,230.60	-1,526.50	1,541.86	1,490.39	51.47	29.955				
9,600.00	8,681.00	9,783.78	8,795.00	37.08	38.18	94.14	-1,330.60	-1,525.51	1,541.84	1,489.06	52.78	29.213				
9,700.00	8,681.00	9,883.78	8,795.00	38.06	39.14	94.14	-1,430.59	-1,524.53	1,541.83	1,487.67	54.15	28.471				
9,800.00	8,681.00	9,983.78	8,795.00	39.08	40.14	94.14	-1,530.59	-1,523.54	1,541.81	1,486.22	55.59	27.734				
9,900.00	8,681.00	10,083.78	8,795.00	40.15	41.18	94.14	-1,630.58	-1,522.55	1,541.80	1,484.71	57.09	27.006				
10,000.00	8,681.00	10,183.78	8,795.00	41.25	42.26	94.14	-1,730.58	-1,521.56	1,541.78	1,483.14	58.64	26.292				
10,100.00	8,681.00	10,283.78	8,795.00	42.39	43.38	94.14	-1,830.57	-1,520.58	1,541.77	1,481.53	60.24	25.592				
10,200.00	8,681.00	10,383.78	8,795.00	43.56	44.53	94.14	-1,930.57	-1,519.59	1,541.75	1,479.86	61.89	24.911				
10,300.00	8,681.00	10,483.78	8,795.00	44.77	45.71	94.14	-2,030.56	-1,518.60	1,541.74	1,478.16	63.58	24.248				
10,400.00	8,681.00	10,583.78	8,795.00	46.00	46.92	94.14	-2,130.56	-1,517.61	1,541.72	1,476.41	65.31	23.605				
10,500.00	8,681.00	10,683.78	8,795.00	47.25	48.15	94.14	-2,230.55	-1,516.63	1,541.71	1,474.63	67.08	22.983				
10,600.00	8,681.00	10,783.78	8,795.00	48.53	49.41	94.14	-2,330.55	-1,515.64	1,541.69	1,472.81	68.88	22.382				
10,700.00	8,681.00	10,883.78	8,795.00	49.83	50.70	94.14	-2,430.54	-1,514.65	1,541.68	1,470.97	70.71	21.803				
10,800.00	8,681.00	10,983.78	8,795.00	51.16	52.00	94.14	-2,530.54	-1,513.67	1,541.66	1,469.09	72.57	21.244				
10,900.00	8,681.00	11,083.78	8,795.00	52.50	53.32	94.14	-2,630.53	-1,512.68	1,541.65	1,467.19	74.46	20.705				
11,000.00	8,681.00	11,183.78	8,795.00	53.86	54.66	94.14	-2,730.53	-1,511.69	1,541.63	1,465.27	76.37	20.187				
11,100.00	8,681.00	11,283.78	8,795.00	55.23	56.02	94.14	-2,830.52	-1,510.70	1,541.62	1,463.32	78.30	19.688				
11,200.00	8,681.00	11,383.78	8,795.00	56.62	57.39	94.14	-2,930.52	-1,509.72	1,541.60	1,461.35	80.26	19.209				
11,300.00	8,681.00	11,483.78	8,795.00	58.02	58.78	94.14	-3,030.51	-1,508.73	1,541.59	1,459.36	82.23	18.747				
11,400.00	8,681.00	11,583.78	8,795.00	59.44	60.18	94.14	-3,130.51	-1,507.74	1,541.57	1,457.35	84.22	18.303				
11,500.00	8,681.00	11,683.78	8,795.00	60.86	61.59	94.14	-3,230.50	-1,506.76	1,541.56	1,455.33	86.23	17.877				
11,600.00	8,681.00	11,783.78	8,795.00	62.30	63.01	94.14	-3,330.50	-1,505.77	1,541.54	1,453.29	88.26	17.466				
11,700.00	8,681.00	11,883.78	8,795.00	63.75	64.45	94.14	-3,430.49	-1,504.78	1,541.53	1,451.23	90.30	17.072				
11,800.00	8,681.00	11,983.78	8,795.00	65.21	65.89	94.14	-3,530.49	-1,503.79	1,541.51	1,449.16	92.35	16.692				
11,900.00	8,681.00	12,083.78	8,795.00	66.68	67.35	94.14	-3,630.48	-1,502.81	1,541.50	1,447.08	94.42	16.326				
12,000.00	8,681.00	12,183.78	8,795.00	68.15	68.81	94.14	-3,730.48	-1,501.82	1,541.48	1,444.99	96.50	15.974				
12,100.00	8,681.00	12,283.78	8,795.00	69.63	70.28	94.14	-3,830.47	-1,500.83	1,541.47	1,442.88	98.59	15.636				
12,200.00	8,681.00	12,383.78	8,795.00	71.13	71.76	94.14	-3,930.47	-1,499.84	1,541.45	1,440.77	100.69	15.309				
12,300.00	8,681.00	12,483.78	8,795.00	72.62	73.25	94.14	-4,030.46	-1,498.86	1,541.44	1,438.64	102.80	14.995				
12,400.00	8,681.00	12,583.78	8,795.00	74.13	74.74	94.14	-4,130.46	-1,497.87	1,541.42	1,436.51	104.92	14.692				
12,500.00	8,681.00	12,683.78	8,795.00	75.64	76.24	94.14	-4,230.45	-1,496.88	1,541.41	1,434.36	107.05	14.399				
12,600.00	8,681.00	12,783.78	8,795.00	77.15	77.75	94.14	-4,330.45	-1,495.90	1,541.39	1,432.21	109.18	14.118				
12,700.00	8,681.00	12,883.78	8,795.00	78.68	79.26	94.14	-4,430.44	-1,494.91	1,541.38	1,430.05	111.33	13.845				
12,800.00	8,681.00	12,983.78	8,795.00	80.20	80.78	94.14	-4,530.44	-1,493.92	1,541.36	1,427.88	113.48	13.583				
12,900.00	8,681.00	13,083.78	8,795.00	81.74	82.30	94.14	-4,630.44	-1,492.93	1,541.35	1,425.71	115.64	13.329				
13,000.00	8,681.00	13,183.78	8,795.00	83.27	83.83	94.14	-4,730.43	-1,491.95	1,541.33	1,423.53	117.80	13.084				
13,100.00	8,681.00	13,283.78	8,795.00	84.81	85.36	94.14	-4,830.43	-1,490.96	1,541.32	1,421.34	119.98	12.847				
13,200.00	8,681.00	13,383.78	8,795.00	86.36	86.89	94.14	-4,930.42	-1,489.97	1,541.30	1,419.15	122.15	12.618				
13,300.00	8,681.00	13,483.78	8,795.00	87.91	88.43	94.14	-5,030.42	-1,488.99	1,541.29	1,416.95	124.34	12.396				
13,400.00	8,681.00	13,583.78	8,795.00	89.46	89.98	94.14	-5,130.41	-1,488.00	1,541.27	1,414.75	126.52	12.182				
13,500.00	8,681.00	13,683.78	8,795.00	91.01	91.53	94.14	-5,230.41	-1,487.01	1,541.26	1,412.54	128.72	11.974				
13,600.00	8,681.00	13,783.78	8,795.00	92.57	93.08	94.14	-5,330.40	-1,486.02	1,541.24	1,410.33	130.92	11.773				
13,700.00	8,681.00	13,883.78	8,795.00	94.13	94.63	94.14	-5,430.40	-1,485.04	1,541.23	1,408.11	133.12	11.578				
13,800.00	8,681.00	13,983.78	8,795.00	95.70	96.19	94.14	-5,530.39	-1,484.05	1,541.21	1,405.89	135.32	11.389				
13,900.00	8,681.00	14,083.78	8,795.00	97.27	97.75	94.14	-5,630.39	-1,483.06	1,541.20	1,403.66	137.53	11.206				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 102H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,000.00	8,681.00	14,183.78	8,795.00	98.84	99.32	94.14	-5,730.38	-1,482.07	1,541.18	1,401.44	139.75	11.028				
14,100.00	8,681.00	14,283.78	8,795.00	100.41	100.89	94.14	-5,830.38	-1,481.09	1,541.17	1,399.20	141.97	10.856				
14,200.00	8,681.00	14,383.78	8,795.00	101.99	102.46	94.14	-5,930.37	-1,480.10	1,541.15	1,396.97	144.19	10.688				
14,300.00	8,681.00	14,483.78	8,795.00	103.57	104.03	94.14	-6,030.37	-1,479.11	1,541.14	1,394.73	146.41	10.526				
14,400.00	8,681.00	14,583.78	8,795.00	105.15	105.60	94.14	-6,130.36	-1,478.13	1,541.12	1,392.48	148.64	10.368				
14,500.00	8,681.00	14,683.78	8,795.00	106.73	107.18	94.14	-6,230.36	-1,477.14	1,541.11	1,390.24	150.87	10.215				
14,600.00	8,681.00	14,783.78	8,795.00	108.31	108.76	94.14	-6,330.35	-1,476.15	1,541.09	1,387.99	153.11	10.065				
14,700.00	8,681.00	14,883.78	8,795.00	109.90	110.34	94.14	-6,430.35	-1,475.16	1,541.08	1,385.74	155.34	9.920				
14,800.00	8,681.00	14,983.78	8,795.00	111.49	111.92	94.14	-6,530.34	-1,474.18	1,541.06	1,383.48	157.58	9.779				
14,900.00	8,681.00	15,083.78	8,795.00	113.08	113.51	94.14	-6,630.34	-1,473.19	1,541.05	1,381.22	159.83	9.642				
15,000.00	8,681.00	15,183.78	8,795.00	114.67	115.10	94.14	-6,730.33	-1,472.20	1,541.03	1,378.96	162.07	9.508				
15,100.00	8,681.00	15,283.78	8,795.00	116.27	116.69	94.14	-6,830.33	-1,471.21	1,541.02	1,376.70	164.32	9.378				
15,200.00	8,681.00	15,383.78	8,795.00	117.86	118.28	94.14	-6,930.32	-1,470.23	1,541.00	1,374.44	166.57	9.252				
15,300.00	8,681.00	15,483.78	8,795.00	119.46	119.87	94.14	-7,030.32	-1,469.24	1,540.99	1,372.17	168.82	9.128				
15,400.00	8,681.00	15,583.78	8,795.00	121.06	121.46	94.14	-7,130.31	-1,468.25	1,540.97	1,369.90	171.07	9.008				
15,500.00	8,681.00	15,683.78	8,795.00	122.66	123.06	94.14	-7,230.31	-1,467.27	1,540.96	1,367.63	173.33	8.890				
15,600.00	8,681.00	15,783.78	8,795.00	124.26	124.65	94.14	-7,330.30	-1,466.28	1,540.94	1,365.36	175.59	8.776				
15,700.00	8,681.00	15,883.78	8,795.00	125.86	126.25	94.14	-7,430.30	-1,465.29	1,540.93	1,363.08	177.84	8.664				
15,800.00	8,681.00	15,983.78	8,795.00	127.46	127.85	94.14	-7,530.29	-1,464.30	1,540.91	1,360.81	180.11	8.556				
15,900.00	8,681.00	16,083.78	8,795.00	129.07	129.45	94.14	-7,630.29	-1,463.32	1,540.90	1,358.53	182.37	8.449				
16,000.00	8,681.00	16,183.78	8,795.00	130.67	131.06	94.14	-7,730.28	-1,462.33	1,540.88	1,356.25	184.63	8.346				
16,100.00	8,681.00	16,283.78	8,795.00	132.28	132.66	94.14	-7,830.28	-1,461.34	1,540.87	1,353.97	186.90	8.244				
16,200.00	8,681.00	16,383.78	8,795.00	133.89	134.26	94.14	-7,930.27	-1,460.36	1,540.85	1,351.69	189.17	8.145				
16,300.00	8,681.00	16,483.78	8,795.00	135.50	135.87	94.14	-8,030.27	-1,459.37	1,540.84	1,349.40	191.44	8.049				
16,400.00	8,681.00	16,583.78	8,795.00	137.11	137.48	94.14	-8,130.26	-1,458.38	1,540.82	1,347.12	193.71	7.954				
16,500.00	8,681.00	16,683.78	8,795.00	138.72	139.08	94.14	-8,230.26	-1,457.39	1,540.81	1,344.83	195.98	7.862				
16,600.00	8,681.00	16,783.78	8,795.00	140.33	140.69	94.14	-8,330.25	-1,456.41	1,540.79	1,342.54	198.25	7.772				
16,700.00	8,681.00	16,883.78	8,795.00	141.95	142.30	94.14	-8,430.25	-1,455.42	1,540.78	1,340.25	200.53	7.684				
16,800.00	8,681.00	16,983.78	8,795.00	143.56	143.91	94.14	-8,530.25	-1,454.43	1,540.76	1,337.96	202.80	7.597				
16,900.00	8,681.00	17,083.78	8,795.00	145.17	145.52	94.14	-8,630.24	-1,453.44	1,540.75	1,335.67	205.08	7.513				
17,000.00	8,681.00	17,183.78	8,795.00	146.79	147.14	94.14	-8,730.24	-1,452.46	1,540.73	1,333.38	207.36	7.430				
17,100.00	8,681.00	17,283.78	8,795.00	148.41	148.75	94.14	-8,830.23	-1,451.47	1,540.72	1,331.08	209.64	7.349				
17,200.00	8,681.00	17,383.78	8,795.00	150.02	150.36	94.14	-8,930.23	-1,450.48	1,540.70	1,328.79	211.92	7.270				
17,300.00	8,681.00	17,483.78	8,795.00	151.64	151.98	94.14	-9,030.22	-1,449.50	1,540.69	1,326.49	214.20	7.193				
17,400.00	8,681.00	17,583.78	8,795.00	153.26	153.60	94.14	-9,130.22	-1,448.51	1,540.67	1,324.19	216.48	7.117				
17,500.00	8,681.00	17,683.78	8,795.00	154.88	155.21	94.14	-9,230.21	-1,447.52	1,540.66	1,321.89	218.77	7.042				
17,600.00	8,681.00	17,783.78	8,795.00	156.50	156.83	94.14	-9,330.21	-1,446.53	1,540.64	1,319.59	221.05	6.970				
17,700.00	8,681.00	17,883.78	8,795.00	158.12	158.45	94.14	-9,430.20	-1,445.55	1,540.63	1,317.29	223.34	6.898				
17,800.00	8,681.00	17,983.78	8,795.00	159.74	160.07	94.14	-9,530.20	-1,444.56	1,540.61	1,314.99	225.62	6.828				
17,900.00	8,681.00	18,083.78	8,795.00	161.36	161.69	94.14	-9,630.19	-1,443.57	1,540.60	1,312.69	227.91	6.760				
18,000.00	8,681.00	18,183.78	8,795.00	162.99	163.31	94.14	-9,730.19	-1,442.59	1,540.58	1,310.38	230.20	6.692				
18,100.00	8,681.00	18,283.78	8,795.00	164.61	164.93	94.14	-9,830.18	-1,441.60	1,540.57	1,308.08	232.49	6.626				
18,200.00	8,681.00	18,383.78	8,795.00	166.23	166.55	94.14	-9,930.18	-1,440.61	1,540.56	1,305.78	234.78	6.562				
18,300.00	8,681.00	18,483.78	8,795.00	167.86	168.17	94.14	-10,030.17	-1,439.62	1,540.54	1,303.47	237.07	6.498				
18,400.00	8,681.00	18,583.78	8,795.00	169.48	169.79	94.14	-10,130.17	-1,438.64	1,540.53	1,301.16	239.36	6.436				
18,500.00	8,681.00	18,683.78	8,795.00	171.11	171.41	94.14	-10,230.16	-1,437.65	1,540.51	1,298.86	241.65	6.375				
18,600.00	8,681.00	18,783.78	8,795.00	172.73	173.04	94.14	-10,330.16	-1,436.66	1,540.50	1,296.55	243.94	6.315				
18,674.48	8,681.00	18,858.26	8,795.00	173.94	174.25	94.14	-10,404.63	-1,435.93	1,540.48	1,294.83	245.65	6.271				
18,681.03	8,681.00	18,862.99	8,795.00	174.05	174.32	94.14	-10,409.36	-1,435.88	1,540.48	1,294.71	245.77	6.268 ES, SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 104H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance				Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	89.45	0.24	25.00	25.01							
100.00	100.00	99.40	99.40	0.13	0.12	89.45	0.24	25.00	25.00	24.82	0.18	141.327				
200.00	200.00	199.40	199.40	0.48	0.48	89.45	0.24	25.00	25.00	24.32	0.68	36.612				
300.00	300.00	299.40	299.40	0.84	0.84	89.45	0.24	25.00	25.00	23.81	1.19	21.012				
400.00	400.00	399.40	399.40	1.20	1.20	89.45	0.24	25.00	25.00	23.30	1.70	14.734				
500.00	500.00	499.40	499.40	1.56	1.56	89.45	0.24	25.00	25.00	22.80	2.20	11.345				
600.00	600.00	599.40	599.40	1.92	1.92	89.45	0.24	25.00	25.00	22.29	2.71	9.223				
700.00	700.00	699.40	699.40	2.28	2.27	89.45	0.24	25.00	25.00	21.78	3.22	7.770				
800.00	800.00	799.40	799.40	2.63	2.63	89.45	0.24	25.00	25.00	21.28	3.72	6.712				
900.00	900.00	899.40	899.40	2.99	2.99	89.45	0.24	25.00	25.00	20.77	4.23	5.908				
1,000.00	1,000.00	999.40	999.40	3.35	3.35	89.45	0.24	25.00	25.00	20.26	4.74	5.276				
1,100.00	1,100.00	1,099.40	1,099.40	3.71	3.71	89.45	0.24	25.00	25.00	19.76	5.25	4.766				
1,200.00	1,200.00	1,199.40	1,199.40	4.07	4.07	89.45	0.24	25.00	25.00	19.25	5.75	4.346				
1,300.00	1,300.00	1,299.40	1,299.40	4.43	4.42	89.45	0.24	25.00	25.00	18.74	6.26	3.994				
1,400.00	1,400.00	1,399.40	1,399.40	4.79	4.78	89.45	0.24	25.00	25.00	18.23	6.77	3.695				
1,500.00	1,500.00	1,499.40	1,499.40	5.14	5.14	89.45	0.24	25.00	25.00	17.73	7.27	3.437				
1,600.00	1,600.00	1,599.40	1,599.40	5.50	5.50	89.45	0.24	25.00	25.00	17.22	7.78	3.213				
1,700.00	1,700.00	1,699.40	1,699.40	5.86	5.86	89.45	0.24	25.00	25.00	16.71	8.29	3.017				
1,800.00	1,800.00	1,799.40	1,799.40	6.22	6.22	89.45	0.24	25.00	25.00	16.21	8.79	2.843				
1,900.00	1,900.00	1,899.40	1,899.40	6.58	6.58	89.45	0.24	25.00	25.00	15.70	9.30	2.688				
2,000.00	2,000.00	1,999.40	1,999.40	6.94	6.93	89.45	0.24	25.00	25.00	15.19	9.81	2.549 CC, ES, SF				
2,100.00	2,100.00	2,098.51	2,098.49	7.29	7.28	90.02	-0.01	26.68	26.69	16.39	10.30	2.592				
2,200.00	2,200.00	2,197.38	2,197.23	7.65	7.62	91.38	-0.76	31.72	31.81	21.04	10.77	2.954				
2,300.00	2,300.00	2,295.79	2,295.26	8.01	7.96	92.88	-2.01	40.09	40.35	29.13	11.22	3.595				
2,400.00	2,400.00	2,393.49	2,392.26	8.37	8.30	94.15	-3.75	51.69	52.31	40.64	11.67	4.483				
2,500.00	2,500.00	2,490.29	2,487.90	8.73	8.65	95.12	-5.95	66.39	67.64	55.54	12.10	5.591				
2,600.00	2,600.00	2,585.97	2,581.89	9.09	9.00	95.83	-8.59	84.06	86.30	73.78	12.52	6.895				
2,700.00	2,700.00	2,680.34	2,673.96	9.45	9.37	96.36	-11.64	104.52	108.20	95.28	12.92	8.377				
2,800.00	2,800.00	2,773.23	2,763.87	9.80	9.74	96.74	-15.09	127.58	133.29	119.99	13.30	10.020				
2,900.00	2,900.00	2,864.48	2,851.42	10.16	10.14	97.04	-18.89	153.03	161.48	147.81	13.67	11.810				
3,000.00	3,000.00	2,957.57	2,940.02	10.52	10.55	97.27	-23.11	181.27	192.14	178.03	14.11	13.617				
3,100.00	3,099.99	3,052.73	3,030.52	10.86	11.00	-82.08	-27.46	210.36	222.88	208.29	14.59	15.280				
3,200.00	3,199.91	3,147.94	3,121.07	11.18	11.46	-82.35	-31.81	239.47	253.29	238.24	15.05	16.825				
3,300.00	3,299.69	3,243.15	3,211.62	11.51	11.94	-83.02	-36.16	268.57	283.44	267.91	15.53	18.255				
3,400.00	3,399.27	3,338.29	3,302.10	11.84	12.42	-83.97	-40.50	297.65	313.42	297.41	16.01	19.582				
3,500.00	3,498.57	3,433.29	3,392.45	12.17	12.91	-85.12	-44.84	326.69	343.34	326.84	16.49	20.818				
3,533.06	3,531.33	3,464.66	3,422.28	12.28	13.08	-85.54	-46.28	336.28	353.24	336.58	16.66	21.209				
3,600.00	3,597.62	3,528.14	3,482.65	12.50	13.42	-86.65	-49.18	355.69	373.36	356.37	16.99	21.979				
3,700.00	3,696.65	3,622.98	3,572.85	12.85	13.93	-88.10	-53.51	384.68	403.63	386.14	17.49	23.079				
3,800.00	3,795.68	3,717.82	3,663.05	13.19	14.44	-89.35	-57.84	413.67	434.10	416.10	18.00	24.120				
3,900.00	3,894.70	3,812.66	3,753.24	13.54	14.97	-90.44	-62.17	442.67	464.74	446.23	18.51	25.106				
4,000.00	3,993.73	3,907.51	3,843.44	13.90	15.50	-91.40	-66.50	471.66	495.51	476.48	19.03	26.037				
4,100.00	4,092.76	4,002.35	3,933.64	14.26	16.03	-92.24	-70.84	500.65	526.40	506.84	19.55	26.919				
4,149.39	4,141.67	4,049.19	3,978.19	14.44	16.30	-92.62	-72.98	514.97	541.69	521.87	19.82	27.337				
4,200.00	4,191.83	4,097.21	4,023.86	14.62	16.57	-93.20	-75.17	529.65	557.36	537.27	20.08	27.754				
4,300.00	4,291.19	4,192.24	4,114.24	14.98	17.12	-94.09	-79.51	558.70	588.24	567.63	20.61	28.546				
4,400.00	4,390.81	4,287.40	4,204.73	15.34	17.66	-94.69	-83.86	587.79	618.96	597.84	21.13	29.298				
4,500.00	4,490.62	4,382.61	4,295.28	15.69	18.22	-95.03	-88.21	616.89	649.48	627.84	21.64	30.014				
4,600.00	4,590.56	4,477.82	4,385.83	16.04	18.77	-95.14	-92.56	646.00	679.80	657.65	22.14	30.698				
4,682.45	4,673.00	4,556.27	4,460.44	16.32	19.23	84.55	-96.14	669.98	704.66	682.10	22.56	31.237				
4,700.00	4,690.55	4,572.96	4,476.31	16.38	19.33	84.65	-96.90	675.08	709.94	687.29	22.65	31.348				
4,800.00	4,790.55	4,668.06	4,566.76	16.73	19.89	85.22	-101.25	704.15	740.06	716.91	23.15	31.969				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,900.00	4,890.55	4,763.17	4,657.20	17.08	20.46	85.75	-105.59	733.23	770.25	746.60	23.65	32.564		
5,000.00	4,990.55	4,858.27	4,747.65	17.43	21.02	86.24	-109.94	762.30	800.49	776.34	24.16	33.135		
5,100.00	5,090.55	4,953.37	4,838.10	17.78	21.59	86.69	-114.28	791.37	830.79	806.12	24.67	33.683		
5,200.00	5,190.55	5,048.48	4,928.54	18.13	22.16	87.11	-118.62	820.44	861.12	835.95	25.17	34.209		
5,300.00	5,290.55	5,143.58	5,018.99	18.48	22.73	87.50	-122.97	849.52	891.50	865.82	25.68	34.716		
5,400.00	5,390.55	5,238.68	5,109.44	18.83	23.30	87.87	-127.31	878.59	921.91	895.72	26.19	35.202		
5,500.00	5,490.55	5,333.79	5,199.88	19.19	23.88	88.21	-131.66	907.66	952.35	925.65	26.70	35.671		
5,600.00	5,590.55	5,428.89	5,290.33	19.54	24.45	88.53	-136.00	936.73	982.82	955.61	27.21	36.121		
5,700.00	5,690.55	5,523.99	5,380.78	19.89	25.03	88.83	-140.35	965.80	1,013.32	985.60	27.72	36.556		
5,800.00	5,790.55	5,619.10	5,471.22	20.24	25.61	89.12	-144.69	994.88	1,043.84	1,015.61	28.23	36.974		
5,900.00	5,890.55	5,714.20	5,561.67	20.59	26.19	89.39	-149.03	1,023.95	1,074.39	1,045.64	28.74	37.377		
6,000.00	5,990.55	5,809.31	5,652.12	20.95	26.77	89.64	-153.38	1,053.02	1,104.95	1,075.70	29.26	37.766		
6,100.00	6,090.55	5,904.41	5,742.56	21.30	27.35	89.88	-157.72	1,082.09	1,135.54	1,105.77	29.77	38.141		
6,200.00	6,190.55	5,999.51	5,833.01	21.65	27.94	90.11	-162.07	1,111.17	1,166.14	1,135.85	30.29	38.504		
6,300.00	6,290.55	6,094.62	5,923.46	22.00	28.52	90.32	-166.41	1,140.24	1,196.75	1,165.95	30.80	38.854		
6,400.00	6,390.55	6,189.72	6,013.90	22.36	29.10	90.53	-170.76	1,169.31	1,227.39	1,196.07	31.32	39.192		
6,500.00	6,490.55	6,284.82	6,104.35	22.71	29.69	90.72	-175.10	1,198.38	1,258.03	1,226.20	31.83	39.519		
6,600.00	6,590.55	6,379.93	6,194.80	23.06	30.27	90.91	-179.44	1,227.45	1,288.69	1,256.34	32.35	39.835		
6,700.00	6,690.55	6,475.03	6,285.24	23.42	30.86	91.09	-183.79	1,256.53	1,319.36	1,286.49	32.87	40.142		
6,800.00	6,790.55	6,570.13	6,375.69	23.77	31.45	91.25	-188.13	1,285.60	1,350.04	1,316.65	33.39	40.438		
6,900.00	6,890.55	6,665.24	6,466.14	24.13	32.04	91.42	-192.48	1,314.67	1,380.73	1,346.82	33.90	40.725		
7,000.00	6,990.55	6,760.34	6,556.58	24.48	32.63	91.57	-196.82	1,343.74	1,411.43	1,377.00	34.42	41.004		
7,100.00	7,090.55	6,902.23	6,691.99	24.83	33.49	91.78	-203.09	1,385.68	1,441.38	1,406.13	35.25	40.890		
7,200.00	7,190.55	7,097.83	6,881.59	25.19	34.54	92.01	-210.17	1,433.05	1,465.73	1,429.42	36.31	40.368		
7,300.00	7,290.55	7,299.38	7,079.91	25.54	35.45	92.16	-215.44	1,468.36	1,483.35	1,446.12	37.23	39.845		
7,400.00	7,390.55	7,505.09	7,284.40	25.90	36.22	92.26	-218.69	1,490.09	1,493.97	1,455.99	37.98	39.336		
7,500.00	7,490.55	7,712.92	7,492.06	26.25	36.82	92.29	-219.76	1,497.25	1,497.44	1,458.90	38.54	38.852		
7,507.70	7,498.25	7,728.94	7,508.08	26.28	36.87	92.29	-219.75	1,497.18	1,497.41	1,458.83	38.58	38.814		
7,600.00	7,590.55	7,810.81	7,589.95	26.61	37.07	92.29	-219.76	1,497.25	1,497.44	1,458.43	39.01	38.381		
7,700.00	7,690.55	7,910.81	7,689.95	26.96	37.32	92.29	-219.76	1,497.25	1,497.44	1,457.95	39.49	37.921		
7,800.00	7,790.55	8,010.81	7,789.95	27.32	37.58	92.29	-219.76	1,497.25	1,497.44	1,457.48	39.96	37.471		
7,900.00	7,890.55	8,110.81	7,889.95	27.67	37.84	92.29	-219.76	1,497.25	1,497.44	1,457.01	40.44	37.031		
8,000.00	7,990.55	8,210.81	7,989.95	28.03	38.10	92.29	-219.76	1,497.25	1,497.44	1,456.53	40.91	36.601		
8,004.45	7,995.00	8,215.26	7,994.40	28.04	38.11	92.29	-219.76	1,497.25	1,497.44	1,456.51	40.93	36.582		
8,100.00	8,090.55	8,307.70	8,086.83	28.38	38.35	92.31	-220.25	1,497.25	1,497.47	1,456.08	41.39	36.181		
8,117.49	8,108.04	8,323.13	8,102.24	28.44	38.39	92.34	-221.10	1,497.26	1,497.52	1,456.05	41.47	36.110		
8,150.00	8,140.53	8,350.00	8,128.99	28.56	38.46	-87.03	-223.57	1,497.29	1,497.63	1,456.01	41.62	35.982		
8,200.00	8,190.27	8,395.56	8,173.99	28.73	38.58	-86.91	-230.61	1,497.36	1,497.78	1,455.92	41.86	35.783		
8,250.00	8,239.37	8,439.25	8,216.49	28.91	38.70	-86.83	-240.69	1,497.46	1,497.90	1,455.80	42.10	35.580		
8,300.00	8,287.48	8,482.83	8,257.99	29.09	38.83	-86.76	-253.94	1,497.59	1,498.00	1,455.65	42.35	35.375		
8,350.00	8,334.22	8,526.32	8,298.29	29.27	38.95	-86.71	-270.28	1,497.75	1,498.07	1,455.47	42.60	35.167		
8,400.00	8,379.24	8,569.76	8,337.19	29.46	39.08	-86.69	-289.60	1,497.94	1,498.10	1,455.25	42.86	34.955		
8,450.00	8,422.20	8,613.19	8,374.50	29.66	39.20	-86.69	-311.80	1,498.16	1,498.11	1,454.98	43.12	34.740		
8,500.00	8,462.76	8,656.64	8,410.04	29.86	39.33	-86.71	-336.78	1,498.40	1,498.08	1,454.68	43.40	34.520		
8,550.00	8,500.63	8,700.00	8,443.51	30.07	39.46	-86.76	-364.32	1,498.67	1,498.02	1,454.34	43.68	34.293		
8,600.00	8,535.51	8,743.70	8,475.05	30.28	39.59	-86.82	-394.56	1,498.97	1,497.93	1,453.95	43.98	34.060		
8,650.00	8,567.13	8,787.39	8,504.18	30.51	39.73	-86.91	-427.10	1,499.29	1,497.81	1,453.52	44.29	33.819		
8,700.00	8,595.26	8,831.22	8,530.84	30.75	39.86	-87.02	-461.88	1,499.63	1,497.66	1,453.05	44.61	33.571		
8,750.00	8,619.68	8,875.23	8,554.84	30.99	40.01	-87.15	-498.75	1,500.00	1,497.50	1,452.55	44.95	33.314		
8,800.00	8,640.21	8,919.45	8,576.04	31.25	40.15	-87.29	-537.54	1,500.38	1,497.32	1,452.01	45.30	33.051		
8,850.00	8,656.69	8,963.92	8,594.28	31.52	40.31	-87.46	-578.08	1,500.78	1,497.12	1,451.45	45.67	32.780		
8,900.00	8,668.99	9,008.66	8,609.41	31.80	40.47	-87.65	-620.18	1,501.19	1,496.92	1,450.87	46.05	32.504		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,950.00	8,677.03	9,053.73	8,621.27	32.09	40.64	-87.85	-663.64	1,501.62	1,496.72	1,450.27	46.45	32.224		
9,000.00	8,680.73	9,100.00	8,629.87	32.38	40.83	-88.07	-709.09	1,502.06	1,496.52	1,449.67	46.85	31.942		
9,017.49	8,681.00	9,115.11	8,631.87	32.49	40.89	-88.14	-724.07	1,502.21	1,496.46	1,449.46	46.99	31.844		
9,089.54	8,681.00	9,181.65	8,635.99	32.94	41.18	-88.30	-790.44	1,502.87	1,496.32	1,448.71	47.61	31.429		
9,100.00	8,681.00	9,191.94	8,636.00	33.00	41.23	-88.30	-800.72	1,502.97	1,496.33	1,448.62	47.70	31.369		
9,200.00	8,681.00	9,291.94	8,636.00	33.70	41.72	-88.30	-900.72	1,503.95	1,496.34	1,447.68	48.66	30.754		
9,300.00	8,681.00	9,391.94	8,636.00	34.46	42.27	-88.30	-1,000.71	1,504.93	1,496.35	1,446.65	49.70	30.108		
9,400.00	8,681.00	9,491.94	8,636.00	35.28	42.87	-88.30	-1,100.71	1,505.92	1,496.36	1,445.53	50.83	29.439		
9,500.00	8,681.00	9,591.94	8,636.00	36.15	43.53	-88.30	-1,200.70	1,506.90	1,496.37	1,444.33	52.04	28.755		
9,600.00	8,681.00	9,691.94	8,636.00	37.08	44.25	-88.30	-1,300.70	1,507.89	1,496.38	1,443.06	53.32	28.062		
9,700.00	8,681.00	9,791.94	8,636.00	38.06	45.02	-88.30	-1,400.69	1,508.87	1,496.40	1,441.72	54.68	27.368		
9,800.00	8,681.00	9,891.94	8,636.00	39.08	45.83	-88.30	-1,500.69	1,509.85	1,496.41	1,440.31	56.09	26.677		
9,900.00	8,681.00	9,991.94	8,636.00	40.15	46.70	-88.30	-1,600.68	1,510.84	1,496.42	1,438.85	57.57	25.992		
10,000.00	8,681.00	10,091.94	8,636.00	41.25	47.61	-88.30	-1,700.68	1,511.82	1,496.43	1,437.33	59.11	25.318		
10,100.00	8,681.00	10,191.94	8,636.00	42.39	48.56	-88.30	-1,800.67	1,512.81	1,496.44	1,435.75	60.69	24.657		
10,200.00	8,681.00	10,291.94	8,636.00	43.56	49.55	-88.30	-1,900.67	1,513.79	1,496.45	1,434.13	62.32	24.012		
10,300.00	8,681.00	10,391.94	8,636.00	44.77	50.57	-88.30	-2,000.66	1,514.77	1,496.47	1,432.47	64.00	23.383		
10,400.00	8,681.00	10,491.94	8,636.00	46.00	51.64	-88.30	-2,100.66	1,515.76	1,496.48	1,430.76	65.71	22.773		
10,500.00	8,681.00	10,591.94	8,636.00	47.25	52.73	-88.30	-2,200.65	1,516.74	1,496.49	1,429.02	67.47	22.182		
10,600.00	8,681.00	10,691.94	8,636.00	48.53	53.85	-88.30	-2,300.65	1,517.73	1,496.50	1,427.25	69.25	21.610		
10,700.00	8,681.00	10,791.94	8,636.00	49.83	55.00	-88.30	-2,400.64	1,518.71	1,496.51	1,425.44	71.07	21.057		
10,800.00	8,681.00	10,891.94	8,636.00	51.16	56.18	-88.30	-2,500.64	1,519.69	1,496.52	1,423.61	72.92	20.523		
10,900.00	8,681.00	10,991.94	8,636.00	52.50	57.38	-88.30	-2,600.63	1,520.68	1,496.54	1,421.74	74.79	20.009		
11,000.00	8,681.00	11,091.94	8,636.00	53.86	58.61	-88.30	-2,700.63	1,521.66	1,496.55	1,419.85	76.69	19.514		
11,100.00	8,681.00	11,191.94	8,636.00	55.23	59.86	-88.30	-2,800.62	1,522.64	1,496.56	1,417.94	78.62	19.036		
11,200.00	8,681.00	11,291.94	8,636.00	56.62	61.12	-88.30	-2,900.62	1,523.63	1,496.57	1,416.01	80.56	18.577		
11,300.00	8,681.00	11,391.94	8,636.00	58.02	62.41	-88.30	-3,000.62	1,524.61	1,496.58	1,414.05	82.53	18.134		
11,400.00	8,681.00	11,491.94	8,636.00	59.44	63.71	-88.30	-3,100.61	1,525.60	1,496.59	1,412.08	84.51	17.709		
11,500.00	8,681.00	11,591.94	8,636.00	60.86	65.03	-88.30	-3,200.61	1,526.58	1,496.61	1,410.09	86.51	17.299		
11,600.00	8,681.00	11,691.94	8,636.00	62.30	66.37	-88.30	-3,300.60	1,527.56	1,496.62	1,408.09	88.53	16.905		
11,700.00	8,681.00	11,791.94	8,636.00	63.75	67.72	-88.30	-3,400.60	1,528.55	1,496.63	1,406.06	90.57	16.525		
11,800.00	8,681.00	11,891.94	8,636.00	65.21	69.08	-88.30	-3,500.59	1,529.53	1,496.64	1,404.03	92.61	16.160		
11,900.00	8,681.00	11,991.94	8,636.00	66.68	70.45	-88.30	-3,600.59	1,530.52	1,496.65	1,401.98	94.67	15.808		
12,000.00	8,681.00	12,091.94	8,636.00	68.15	71.84	-88.30	-3,700.58	1,531.50	1,496.66	1,399.92	96.75	15.470		
12,100.00	8,681.00	12,191.94	8,636.00	69.63	73.24	-88.30	-3,800.58	1,532.48	1,496.68	1,397.84	98.83	15.143		
12,200.00	8,681.00	12,291.94	8,636.00	71.13	74.65	-88.30	-3,900.57	1,533.47	1,496.69	1,395.76	100.93	14.829		
12,300.00	8,681.00	12,391.94	8,636.00	72.62	76.07	-88.30	-4,000.57	1,534.45	1,496.70	1,393.66	103.04	14.526		
12,400.00	8,681.00	12,491.94	8,636.00	74.13	77.50	-88.30	-4,100.56	1,535.44	1,496.71	1,391.56	105.15	14.234		
12,500.00	8,681.00	12,591.94	8,636.00	75.64	78.94	-88.30	-4,200.56	1,536.42	1,496.72	1,389.45	107.28	13.952		
12,600.00	8,681.00	12,691.94	8,636.00	77.15	80.38	-88.30	-4,300.55	1,537.40	1,496.73	1,387.32	109.41	13.680		
12,700.00	8,681.00	12,791.94	8,636.00	78.68	81.84	-88.30	-4,400.55	1,538.39	1,496.75	1,385.19	111.55	13.417		
12,800.00	8,681.00	12,891.94	8,636.00	80.20	83.30	-88.30	-4,500.54	1,539.37	1,496.76	1,383.06	113.70	13.164		
12,900.00	8,681.00	12,991.94	8,636.00	81.74	84.77	-88.30	-4,600.54	1,540.36	1,496.77	1,380.91	115.86	12.919		
13,000.00	8,681.00	13,091.94	8,636.00	83.27	86.24	-88.30	-4,700.53	1,541.34	1,496.78	1,378.76	118.02	12.682		
13,100.00	8,681.00	13,191.94	8,636.00	84.81	87.72	-88.30	-4,800.53	1,542.32	1,496.79	1,376.60	120.19	12.453		
13,200.00	8,681.00	13,291.94	8,636.00	86.36	89.21	-88.30	-4,900.52	1,543.31	1,496.80	1,374.44	122.37	12.232		
13,300.00	8,681.00	13,391.94	8,636.00	87.91	90.70	-88.30	-5,000.52	1,544.29	1,496.82	1,372.27	124.55	12.018		
13,400.00	8,681.00	13,491.94	8,636.00	89.46	92.20	-88.30	-5,100.51	1,545.27	1,496.83	1,370.09	126.73	11.811		
13,500.00	8,681.00	13,591.94	8,636.00	91.01	93.71	-88.30	-5,200.51	1,546.26	1,496.84	1,367.91	128.93	11.610		
13,600.00	8,681.00	13,691.94	8,636.00	92.57	95.22	-88.30	-5,300.50	1,547.24	1,496.85	1,365.73	131.12	11.416		
13,700.00	8,681.00	13,791.94	8,636.00	94.13	96.73	-88.30	-5,400.50	1,548.23	1,496.86	1,363.54	133.33	11.227		
13,800.00	8,681.00	13,891.94	8,636.00	95.70	98.25	-88.30	-5,500.49	1,549.21	1,496.87	1,361.34	135.53	11.044		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
13,900.00	8,681.00	13,991.94	8,636.00	97.27	99.77	-88.30	-5,600.49	1,550.19	1,496.89	1,359.14	137.74	10.867		
14,000.00	8,681.00	14,091.94	8,636.00	98.84	101.30	-88.30	-5,700.48	1,551.18	1,496.90	1,356.94	139.96	10.695		
14,100.00	8,681.00	14,191.94	8,636.00	100.41	102.83	-88.30	-5,800.48	1,552.16	1,496.91	1,354.74	142.17	10.529		
14,200.00	8,681.00	14,291.94	8,636.00	101.99	104.36	-88.30	-5,900.47	1,553.15	1,496.92	1,352.52	144.40	10.367		
14,300.00	8,681.00	14,391.94	8,636.00	103.57	105.90	-88.30	-6,000.47	1,554.13	1,496.93	1,350.31	146.62	10.209		
14,400.00	8,681.00	14,491.94	8,636.00	105.15	107.44	-88.30	-6,100.47	1,555.11	1,496.95	1,348.09	148.85	10.057		
14,500.00	8,681.00	14,591.94	8,636.00	106.73	108.99	-88.30	-6,200.46	1,556.10	1,496.96	1,345.87	151.08	9.908		
14,600.00	8,681.00	14,691.94	8,636.00	108.31	110.53	-88.30	-6,300.46	1,557.08	1,496.97	1,343.65	153.32	9.764		
14,700.00	8,681.00	14,791.94	8,636.00	109.90	112.08	-88.30	-6,400.45	1,558.07	1,496.98	1,341.42	155.56	9.623		
14,800.00	8,681.00	14,891.94	8,636.00	111.49	113.64	-88.30	-6,500.45	1,559.05	1,496.99	1,339.19	157.80	9.487		
14,900.00	8,681.00	14,991.94	8,636.00	113.08	115.19	-88.30	-6,600.44	1,560.03	1,497.00	1,336.96	160.04	9.354		
15,000.00	8,681.00	15,091.94	8,636.00	114.67	116.75	-88.30	-6,700.44	1,561.02	1,497.02	1,334.73	162.29	9.225		
15,100.00	8,681.00	15,191.94	8,636.00	116.27	118.31	-88.30	-6,800.43	1,562.00	1,497.03	1,332.49	164.54	9.099		
15,200.00	8,681.00	15,291.94	8,636.00	117.86	119.88	-88.30	-6,900.43	1,562.98	1,497.04	1,330.25	166.79	8.976		
15,300.00	8,681.00	15,391.94	8,636.00	119.46	121.44	-88.30	-7,000.42	1,563.97	1,497.05	1,328.01	169.04	8.856		
15,400.00	8,681.00	15,491.94	8,636.00	121.06	123.01	-88.30	-7,100.42	1,564.95	1,497.06	1,325.77	171.29	8.740		
15,500.00	8,681.00	15,591.94	8,636.00	122.66	124.58	-88.30	-7,200.41	1,565.94	1,497.07	1,323.52	173.55	8.626		
15,600.00	8,681.00	15,691.94	8,636.00	124.26	126.16	-88.30	-7,300.41	1,566.92	1,497.09	1,321.27	175.81	8.515		
15,700.00	8,681.00	15,791.94	8,636.00	125.86	127.73	-88.30	-7,400.40	1,567.90	1,497.10	1,319.02	178.07	8.407		
15,800.00	8,681.00	15,891.94	8,636.00	127.46	129.31	-88.30	-7,500.40	1,568.89	1,497.11	1,316.77	180.34	8.302		
15,900.00	8,681.00	15,991.94	8,636.00	129.07	130.89	-88.30	-7,600.39	1,569.87	1,497.12	1,314.52	182.60	8.199		
16,000.00	8,681.00	16,091.94	8,636.00	130.67	132.47	-88.30	-7,700.39	1,570.86	1,497.13	1,312.27	184.87	8.098		
16,100.00	8,681.00	16,191.94	8,636.00	132.28	134.05	-88.30	-7,800.38	1,571.84	1,497.14	1,310.01	187.14	8.000		
16,200.00	8,681.00	16,291.94	8,636.00	133.89	135.63	-88.30	-7,900.38	1,572.82	1,497.16	1,307.75	189.41	7.904		
16,300.00	8,681.00	16,391.94	8,636.00	135.50	137.22	-88.30	-8,000.37	1,573.81	1,497.17	1,305.49	191.68	7.811		
16,400.00	8,681.00	16,491.94	8,636.00	137.11	138.80	-88.30	-8,100.37	1,574.79	1,497.18	1,303.23	193.95	7.719		
16,500.00	8,681.00	16,591.94	8,636.00	138.72	140.39	-88.30	-8,200.36	1,575.78	1,497.19	1,300.97	196.23	7.630		
16,600.00	8,681.00	16,691.94	8,636.00	140.33	141.98	-88.30	-8,300.36	1,576.76	1,497.20	1,298.70	198.50	7.543		
16,700.00	8,681.00	16,791.94	8,636.00	141.95	143.57	-88.30	-8,400.35	1,577.74	1,497.21	1,296.44	200.78	7.457		
16,800.00	8,681.00	16,891.94	8,636.00	143.56	145.17	-88.30	-8,500.35	1,578.73	1,497.23	1,294.17	203.06	7.373		
16,900.00	8,681.00	16,991.94	8,636.00	145.17	146.76	-88.30	-8,600.34	1,579.71	1,497.24	1,291.90	205.34	7.292		
17,000.00	8,681.00	17,091.94	8,636.00	146.79	148.36	-88.30	-8,700.34	1,580.70	1,497.25	1,289.63	207.62	7.212		
17,100.00	8,681.00	17,191.94	8,636.00	148.41	149.95	-88.30	-8,800.33	1,581.68	1,497.26	1,287.36	209.90	7.133		
17,200.00	8,681.00	17,291.94	8,636.00	150.02	151.55	-88.30	-8,900.33	1,582.66	1,497.27	1,285.09	212.18	7.057		
17,300.00	8,681.00	17,391.94	8,636.00	151.64	153.15	-88.30	-9,000.32	1,583.65	1,497.28	1,282.82	214.47	6.981		
17,400.00	8,681.00	17,491.94	8,636.00	153.26	154.75	-88.30	-9,100.32	1,584.63	1,497.30	1,280.54	216.75	6.908		
17,500.00	8,681.00	17,591.94	8,636.00	154.88	156.35	-88.30	-9,200.32	1,585.61	1,497.31	1,278.27	219.04	6.836		
17,600.00	8,681.00	17,691.94	8,636.00	156.50	157.95	-88.30	-9,300.31	1,586.60	1,497.32	1,275.99	221.33	6.765		
17,700.00	8,681.00	17,791.94	8,636.00	158.12	159.55	-88.30	-9,400.31	1,587.58	1,497.33	1,273.72	223.62	6.696		
17,800.00	8,681.00	17,891.94	8,636.00	159.74	161.16	-88.30	-9,500.30	1,588.57	1,497.34	1,271.44	225.90	6.628		
17,900.00	8,681.00	17,991.94	8,636.00	161.36	162.76	-88.30	-9,600.30	1,589.55	1,497.35	1,269.16	228.19	6.562		
18,000.00	8,681.00	18,091.94	8,636.00	162.99	164.37	-88.30	-9,700.29	1,590.53	1,497.37	1,266.88	230.49	6.497		
18,100.00	8,681.00	18,191.94	8,636.00	164.61	165.98	-88.30	-9,800.29	1,591.52	1,497.38	1,264.60	232.78	6.433		
18,200.00	8,681.00	18,291.94	8,636.00	166.23	167.58	-88.30	-9,900.28	1,592.50	1,497.39	1,262.32	235.07	6.370		
18,300.00	8,681.00	18,391.94	8,636.00	167.86	169.19	-88.30	-10,000.28	1,593.49	1,497.40	1,260.04	237.36	6.308		
18,400.00	8,681.00	18,491.94	8,636.00	169.48	170.80	-88.30	-10,100.27	1,594.47	1,497.41	1,257.75	239.66	6.248		
18,500.00	8,681.00	18,591.94	8,636.00	171.11	172.41	-88.30	-10,200.27	1,595.45	1,497.42	1,255.47	241.95	6.189		
18,600.00	8,681.00	18,691.94	8,636.00	172.73	174.02	-88.30	-10,300.26	1,596.44	1,497.44	1,253.19	244.25	6.131		
18,681.03	8,681.00	18,772.96	8,636.00	174.05	175.33	-88.30	-10,381.28	1,597.24	1,497.45	1,251.34	246.11	6.084		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Tatanka Fed Com - Tatanka Fed Com 501H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	2.30	2.30	0.00	0.00	-90.55	-19.44	-2,020.28	2,020.37					
100.00	100.00	102.30	102.30	0.13	0.13	-90.55	-19.44	-2,020.28	2,020.37	2,020.19	0.18	N/A		
200.00	200.00	202.30	202.30	0.48	0.49	-90.55	-19.44	-2,020.28	2,020.37	2,019.68	0.69	2,927.040		
300.00	300.00	302.30	302.30	0.84	0.85	-90.55	-19.44	-2,020.28	2,020.37	2,019.18	1.20	1,687.597		
400.00	400.00	402.30	402.30	1.20	1.21	-90.55	-19.44	-2,020.28	2,020.37	2,018.67	1.70	1,185.567		
500.00	500.00	502.30	502.30	1.56	1.57	-90.55	-19.44	-2,020.28	2,020.37	2,018.16	2.21	913.744		
600.00	600.00	602.30	602.30	1.92	1.93	-90.55	-19.44	-2,020.28	2,020.37	2,017.66	2.72	743.318		
700.00	700.00	702.30	702.30	2.28	2.28	-90.55	-19.44	-2,020.28	2,020.37	2,017.15	3.23	626.472		
800.00	800.00	802.30	802.30	2.63	2.64	-90.55	-19.44	-2,020.28	2,020.37	2,016.64	3.73	541.371		
900.00	900.00	902.30	902.30	2.99	3.00	-90.55	-19.44	-2,020.28	2,020.37	2,016.13	4.24	476.626		
1,000.00	1,000.00	1,002.30	1,002.30	3.35	3.36	-90.55	-19.44	-2,020.28	2,020.37	2,015.63	4.75	425.712		
1,100.00	1,100.00	1,102.30	1,102.30	3.71	3.72	-90.55	-19.44	-2,020.28	2,020.37	2,015.12	5.25	384.626		
1,200.00	1,200.00	1,202.30	1,202.30	4.07	4.08	-90.55	-19.44	-2,020.28	2,020.37	2,014.61	5.76	350.773		
1,300.00	1,300.00	1,302.30	1,302.30	4.43	4.44	-90.55	-19.44	-2,020.28	2,020.37	2,014.11	6.27	322.397		
1,400.00	1,400.00	1,402.30	1,402.30	4.79	4.79	-90.55	-19.44	-2,020.28	2,020.37	2,013.60	6.77	298.268		
1,500.00	1,500.00	1,502.30	1,502.30	5.14	5.15	-90.55	-19.44	-2,020.28	2,020.37	2,013.09	7.28	277.499		
1,600.00	1,600.00	1,602.30	1,602.30	5.50	5.51	-90.55	-19.44	-2,020.28	2,020.37	2,012.59	7.79	259.435		
1,700.00	1,700.00	1,702.30	1,702.30	5.86	5.87	-90.55	-19.44	-2,020.28	2,020.37	2,012.08	8.29	243.578		
1,800.00	1,800.00	1,802.30	1,802.30	6.22	6.23	-90.55	-19.44	-2,020.28	2,020.37	2,011.57	8.80	229.549		
1,900.00	1,900.00	1,902.30	1,902.30	6.58	6.59	-90.55	-19.44	-2,020.28	2,020.37	2,011.07	9.31	217.047		
2,000.00	2,000.00	2,002.30	2,002.30	6.94	6.94	-90.55	-19.44	-2,020.28	2,020.37	2,010.56	9.82	205.837		
2,100.00	2,100.00	2,102.30	2,102.30	7.29	7.30	-90.55	-19.44	-2,020.28	2,020.37	2,010.05	10.32	195.728		
2,200.00	2,200.00	2,202.30	2,202.30	7.65	7.66	-90.55	-19.44	-2,020.28	2,020.37	2,009.54	10.83	186.565		
2,300.00	2,300.00	2,302.30	2,302.30	8.01	8.02	-90.55	-19.44	-2,020.28	2,020.37	2,009.04	11.34	178.222		
2,400.00	2,400.00	2,402.30	2,402.30	8.37	8.38	-90.55	-19.44	-2,020.28	2,020.37	2,008.53	11.84	170.593		
2,500.00	2,500.00	2,502.30	2,502.30	8.73	8.74	-90.55	-19.44	-2,020.28	2,020.37	2,008.02	12.35	163.590		
2,600.00	2,600.00	2,602.30	2,602.30	9.09	9.10	-90.55	-19.44	-2,020.28	2,020.37	2,007.52	12.86	157.140		
2,700.00	2,700.00	2,702.30	2,702.30	9.45	9.45	-90.55	-19.44	-2,020.28	2,020.37	2,007.01	13.36	151.179		
2,800.00	2,800.00	2,802.30	2,802.30	9.80	9.81	-90.55	-19.44	-2,020.28	2,020.37	2,006.50	13.87	145.654		
2,900.00	2,900.00	2,902.30	2,902.30	10.16	10.17	-90.55	-19.44	-2,020.28	2,020.37	2,006.00	14.38	140.518		
3,000.00	3,000.00	3,002.30	3,002.30	10.52	10.53	-90.55	-19.44	-2,020.28	2,020.37	2,005.49	14.88	135.732		
3,100.00	3,099.99	3,102.29	3,102.29	10.86	10.89	89.84	-19.44	-2,020.28	2,020.37	2,004.99	15.38	131.375		
3,200.00	3,199.91	3,202.21	3,202.21	11.18	11.25	89.96	-19.44	-2,020.28	2,020.36	2,004.50	15.86	127.387		
3,228.18	3,228.04	3,230.34	3,230.34	11.28	11.35	90.00	-19.44	-2,020.28	2,020.36	2,004.37	16.00	126.304	CC	
3,300.00	3,299.69	3,301.99	3,301.99	11.51	11.60	90.14	-19.44	-2,020.28	2,020.37	2,004.03	16.34	123.626		
3,400.00	3,399.27	3,400.00	3,400.00	11.84	11.96	90.39	-19.44	-2,020.28	2,020.41	2,003.59	16.82	120.101	ES	
3,500.00	3,498.57	3,466.64	3,466.64	12.17	12.19	90.60	-19.58	-2,020.85	2,021.38	2,004.16	17.22	117.398		
3,533.06	3,531.33	3,500.00	3,499.99	12.28	12.30	90.71	-19.75	-2,021.55	2,022.14	2,004.76	17.38	116.360		
3,600.00	3,597.62	3,532.12	3,532.09	12.50	12.41	90.83	-19.97	-2,022.50	2,024.10	2,006.49	17.61	114.952		
3,700.00	3,696.65	3,600.00	3,599.91	12.85	12.64	91.08	-20.67	-2,025.37	2,028.55	2,010.55	18.00	112.683		
3,800.00	3,795.68	3,662.98	3,662.77	13.19	12.85	91.30	-21.56	-2,029.08	2,034.72	2,016.34	18.38	110.689		
3,900.00	3,894.70	3,728.30	3,727.90	13.54	13.08	91.52	-22.74	-2,033.99	2,042.60	2,023.83	18.77	108.833		
4,000.00	3,993.73	3,800.00	3,799.27	13.90	13.32	91.75	-24.34	-2,040.62	2,052.20	2,033.02	19.17	107.038		
4,100.00	4,092.76	3,858.56	3,857.46	14.26	13.53	91.93	-25.88	-2,047.01	2,063.44	2,043.91	19.53	105.630		
4,149.39	4,141.67	3,900.00	3,898.57	14.44	13.67	92.05	-27.09	-2,052.05	2,069.65	2,049.90	19.75	104.774		
4,200.00	4,191.83	3,923.43	3,921.80	14.62	13.75	92.21	-27.83	-2,055.09	2,076.36	2,056.44	19.91	104.266		
4,300.00	4,291.19	4,000.00	3,997.54	14.98	14.02	92.58	-30.45	-2,066.00	2,090.88	2,070.55	20.33	102.853		
4,400.00	4,390.81	4,052.80	4,049.63	15.34	14.21	92.88	-32.47	-2,074.38	2,106.80	2,086.15	20.65	102.006		
4,500.00	4,490.62	4,100.00	4,096.09	15.69	14.38	93.16	-34.42	-2,082.46	2,124.35	2,103.41	20.95	101.422		
4,600.00	4,590.56	4,181.06	4,175.62	16.04	14.68	93.41	-38.07	-2,097.64	2,143.13	2,121.77	21.36	100.340		
4,682.45	4,673.00	4,233.42	4,226.82	16.32	14.87	-86.76	-40.65	-2,108.32	2,159.77	2,138.13	21.64	99.802		
4,700.00	4,690.55	4,244.52	4,237.66	16.38	14.91	-86.78	-41.21	-2,110.68	2,163.44	2,141.74	21.70	99.697		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,800.00	4,790.55	4,300.00	4,291.70	16.73	15.12	-86.88	-44.15	-2,122.88	2,185.28	2,163.28	22.01	99.305		
4,900.00	4,890.55	4,369.97	4,359.58	17.08	15.40	-87.01	-48.13	-2,139.37	2,208.64	2,186.27	22.37	98.737		
5,000.00	4,990.55	4,431.92	4,419.42	17.43	15.64	-87.13	-51.88	-2,154.97	2,233.55	2,210.85	22.69	98.418		
5,100.00	5,090.55	4,500.00	4,484.86	17.78	15.92	-87.27	-56.27	-2,173.20	2,259.99	2,236.95	23.04	98.071		
5,200.00	5,190.55	4,554.14	4,536.66	18.13	16.14	-87.38	-59.96	-2,188.51	2,287.91	2,264.59	23.33	98.083		
5,300.00	5,290.55	4,600.00	4,580.36	18.48	16.34	-87.48	-63.22	-2,202.03	2,317.40	2,293.84	23.56	98.351		
5,400.00	5,390.55	4,673.98	4,650.49	18.83	16.66	-87.65	-68.73	-2,224.92	2,348.22	2,324.29	23.93	98.110		
5,500.00	5,490.55	4,732.94	4,706.06	19.19	16.93	-87.79	-73.35	-2,244.10	2,380.56	2,356.33	24.23	98.248		
5,600.00	5,590.55	4,818.63	4,786.48	19.54	17.33	-87.99	-80.27	-2,272.84	2,413.91	2,389.24	24.66	97.876		
5,700.00	5,690.55	4,912.48	4,874.56	19.89	17.78	-88.21	-87.86	-2,304.34	2,447.33	2,422.19	25.14	97.346		
5,800.00	5,790.55	5,006.33	4,962.64	20.24	18.24	-88.42	-95.45	-2,335.85	2,480.78	2,455.16	25.62	96.827		
5,900.00	5,890.55	5,100.18	5,050.72	20.59	18.71	-88.62	-103.04	-2,367.35	2,514.26	2,488.16	26.10	96.319		
6,000.00	5,990.55	5,194.03	5,138.80	20.95	19.20	-88.82	-110.63	-2,398.85	2,547.77	2,521.18	26.59	95.822		
6,100.00	6,090.55	5,287.89	5,226.88	21.30	19.69	-89.02	-118.21	-2,430.35	2,581.30	2,554.23	27.08	95.335		
6,200.00	6,190.55	5,381.74	5,314.96	21.65	20.19	-89.20	-125.80	-2,461.85	2,614.86	2,587.30	27.57	94.860		
6,300.00	6,290.55	5,475.59	5,403.04	22.00	20.70	-89.39	-133.39	-2,493.35	2,648.45	2,620.39	28.06	94.396		
6,400.00	6,390.55	5,569.44	5,491.12	22.36	21.22	-89.57	-140.98	-2,524.86	2,682.06	2,653.51	28.55	93.943		
6,500.00	6,490.55	5,663.29	5,579.20	22.71	21.75	-89.74	-148.56	-2,556.36	2,715.69	2,686.64	29.04	93.501		
6,600.00	6,590.55	5,757.14	5,667.28	23.06	22.28	-89.91	-156.15	-2,587.86	2,749.34	2,719.80	29.54	93.069		
6,700.00	6,690.55	5,850.99	5,755.36	23.42	22.82	-90.08	-163.74	-2,619.36	2,783.02	2,752.98	30.04	92.647		
6,800.00	6,790.55	5,944.84	5,843.44	23.77	23.36	-90.24	-171.33	-2,650.86	2,816.72	2,786.18	30.54	92.235		
6,900.00	6,890.55	6,038.69	5,931.52	24.13	23.91	-90.40	-178.92	-2,682.36	2,850.43	2,819.39	31.04	91.834		
7,000.00	6,990.55	6,132.54	6,019.60	24.48	24.46	-90.56	-186.50	-2,713.87	2,884.17	2,852.63	31.54	91.441		
7,100.00	7,090.55	6,226.39	6,107.68	24.83	25.02	-90.71	-194.09	-2,745.37	2,917.92	2,885.88	32.04	91.059		
7,200.00	7,190.55	6,320.24	6,195.76	25.19	25.58	-90.86	-201.68	-2,776.87	2,951.69	2,919.14	32.55	90.685		
7,300.00	7,290.55	6,414.08	6,315.26	25.54	26.35	-91.05	-211.91	-2,819.35	2,985.42	2,952.19	33.23	89.842		
7,400.00	7,390.55	6,507.93	6,413.18	25.90	26.64	-91.55	-239.39	-2,933.43	3,013.16	2,977.92	35.24	85.510		
7,500.00	7,490.55	6,601.78	6,514.74	26.25	30.61	-91.85	-257.23	-3,007.51	3,030.25	2,993.29	36.96	81.990		
7,600.00	7,590.55	6,695.63	6,612.33	26.61	32.15	-91.95	-263.44	-3,033.28	3,036.04	2,997.77	38.27	79.330		
7,700.00	7,690.55	6,789.48	6,709.25	26.96	32.45	-91.95	-263.44	-3,033.28	3,036.04	2,997.28	38.76	78.333		
7,800.00	7,790.55	6,883.33	6,807.10	27.32	32.74	-91.95	-263.44	-3,033.28	3,036.04	2,996.80	39.24	77.362		
7,900.00	7,890.55	6,977.18	6,900.87	27.67	33.04	-91.95	-263.44	-3,033.28	3,036.04	2,996.31	39.73	76.413		
8,000.00	7,990.55	7,070.93	7,000.85	28.03	33.34	-91.95	-263.44	-3,033.28	3,036.04	2,995.82	40.22	75.487		
8,100.00	8,090.55	7,164.78	7,095.85	28.38	33.64	-91.95	-263.44	-3,033.28	3,036.04	2,995.34	40.71	74.582		
8,117.49	8,108.04	7,258.63	7,190.34	28.44	33.69	-91.95	-263.44	-3,033.28	3,036.04	2,995.25	40.79	74.425		
8,150.00	8,140.53	7,352.48	7,288.83	28.56	33.79	88.62	-263.44	-3,033.28	3,036.02	2,995.07	40.95	74.139		
8,200.00	8,190.27	7,446.33	7,386.57	28.73	33.94	88.73	-263.44	-3,033.28	3,035.90	2,994.71	41.19	73.699		
8,250.00	8,239.37	7,540.18	7,484.67	28.91	34.08	88.92	-263.44	-3,033.28	3,035.71	2,994.27	41.44	73.257		
8,300.00	8,287.48	7,634.03	7,582.78	29.09	34.23	89.19	-263.44	-3,033.28	3,035.48	2,993.79	41.69	72.814		
8,350.00	8,334.22	7,727.88	7,680.52	29.27	34.37	89.52	-263.44	-3,033.28	3,035.27	2,993.33	41.94	72.374		
8,400.00	8,379.24	7,821.73	7,774.54	29.46	34.51	89.91	-263.44	-3,033.28	3,035.15	2,992.96	42.19	71.939		
8,411.80	8,389.58	7,915.58	7,871.88	29.51	34.54	90.00	-263.44	-3,033.28	3,035.14	2,992.89	42.25	71.837		
8,450.00	8,422.20	8,009.43	7,969.50	29.66	34.64	90.31	-263.44	-3,033.28	3,035.21	2,992.76	42.44	71.512		
8,500.00	8,462.76	8,103.28	8,065.06	29.86	34.76	90.73	-263.44	-3,033.28	3,035.54	2,992.84	42.70	71.094		
8,550.00	8,500.63	8,197.13	8,162.93	30.07	34.88	91.12	-263.44	-3,033.28	3,036.24	2,993.29	42.95	70.689		
8,600.00	8,535.51	8,290.98	8,257.81	30.28	34.98	91.48	-263.44	-3,033.28	3,037.42	2,994.21	43.21	70.298		
8,650.00	8,567.13	8,384.83	8,350.43	30.51	35.08	91.76	-263.44	-3,033.28	3,039.16	2,995.70	43.46	69.922		
8,700.00	8,595.26	8,478.68	8,447.56	30.75	35.16	91.96	-263.44	-3,033.28	3,041.56	2,997.84	43.72	69.565		
8,750.00	8,619.68	8,572.53	8,541.98	30.99	35.24	92.05	-263.44	-3,033.28	3,044.71	3,000.73	43.98	69.229		
8,800.00	8,640.21	8,666.38	8,636.51	31.25	35.30	92.00	-263.44	-3,033.28	3,048.65	3,004.42	44.24	68.915		
8,850.00	8,656.69	8,760.23	8,730.99	31.52	35.35	91.82	-263.44	-3,033.28	3,053.45	3,008.96	44.49	68.625		
8,900.00	8,668.99	8,854.08	8,825.29	31.80	35.39	91.47	-263.44	-3,033.28	3,059.13	3,014.38	44.75	68.362		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,950.00	8,677.03	8,836.67	8,679.33	32.09	35.41	90.96	-263.44	-3,033.28	3,065.69	3,020.69	45.00	68.128		
9,000.00	8,680.73	8,840.37	8,683.03	32.38	35.42	90.28	-263.44	-3,033.28	3,073.10	3,027.86	45.24	67.924		
9,017.49	8,681.00	8,840.64	8,683.30	32.49	35.42	90.00	-263.44	-3,033.28	3,075.89	3,030.57	45.33	67.860		
9,100.00	8,681.00	8,840.64	8,683.30	33.00	35.42	90.00	-263.44	-3,033.28	3,090.35	3,044.62	45.74	67.571		
9,200.00	8,681.00	8,840.64	8,683.30	33.70	35.42	90.00	-263.44	-3,033.28	3,110.72	3,064.45	46.27	67.233		
9,300.00	8,681.00	8,840.64	8,683.30	34.46	35.42	90.00	-263.44	-3,033.28	3,134.15	3,087.31	46.83	66.920		
9,400.00	8,681.00	8,840.64	8,683.30	35.28	35.42	90.00	-263.44	-3,033.28	3,160.57	3,113.14	47.43	66.637		
9,500.00	8,681.00	8,840.64	8,683.30	36.15	35.42	90.00	-263.44	-3,033.28	3,189.91	3,141.86	48.05	66.392		
9,600.00	8,681.00	8,840.64	8,683.30	37.08	35.42	90.00	-263.44	-3,033.28	3,222.08	3,173.40	48.68	66.188		
9,700.00	8,681.00	8,840.64	8,683.30	38.06	35.42	90.00	-263.44	-3,033.28	3,257.01	3,207.68	49.32	66.032		
9,800.00	8,681.00	8,840.64	8,683.30	39.08	35.42	90.00	-263.44	-3,033.28	3,294.60	3,244.63	49.98	65.925		
9,900.00	8,681.00	8,840.64	8,683.30	40.15	35.42	90.00	-263.44	-3,033.28	3,334.77	3,284.15	50.63	65.870		
10,000.00	8,681.00	8,840.64	8,683.30	41.25	35.42	90.00	-263.44	-3,033.28	3,377.43	3,326.15	51.28	65.868		
10,100.00	8,681.00	8,840.64	8,683.30	42.39	35.42	90.00	-263.44	-3,033.28	3,422.48	3,370.56	51.92	65.920		
10,200.00	8,681.00	8,840.64	8,683.30	43.56	35.42	90.00	-263.44	-3,033.28	3,469.82	3,417.27	52.55	66.025		
10,300.00	8,681.00	8,840.64	8,683.30	44.77	35.42	90.00	-263.44	-3,033.28	3,519.37	3,466.19	53.18	66.185		
10,400.00	8,681.00	8,840.64	8,683.30	46.00	35.42	90.00	-263.44	-3,033.28	3,571.03	3,517.25	53.78	66.398		
10,500.00	8,681.00	8,840.64	8,683.30	47.25	35.42	90.00	-263.44	-3,033.28	3,624.72	3,570.34	54.37	66.666		
10,600.00	8,681.00	8,840.64	8,683.30	48.53	35.42	90.00	-263.44	-3,033.28	3,680.34	3,625.39	54.95	66.981		
10,700.00	8,681.00	12,863.52	10,770.00	49.83	56.37	124.51	-2,445.43	-3,011.66	3,682.92	3,620.49	62.44	58.985		
10,800.00	8,681.00	12,963.52	10,770.00	51.16	57.51	124.51	-2,545.43	-3,010.67	3,682.91	3,618.96	63.95	57.588		
10,900.00	8,681.00	13,063.52	10,770.00	52.50	58.68	124.51	-2,645.42	-3,009.68	3,682.89	3,617.40	65.49	56.233		
11,000.00	8,681.00	13,163.52	10,770.00	53.86	59.87	124.51	-2,745.42	-3,008.68	3,682.88	3,615.82	67.06	54.919		
11,100.00	8,681.00	13,263.52	10,770.00	55.23	61.09	124.51	-2,845.41	-3,007.69	3,682.86	3,614.21	68.65	53.647		
11,200.00	8,681.00	13,363.52	10,770.00	56.62	62.32	124.51	-2,945.41	-3,006.70	3,682.85	3,612.59	70.26	52.418		
11,300.00	8,681.00	13,463.52	10,770.00	58.02	63.58	124.51	-3,045.40	-3,005.71	3,682.83	3,610.94	71.89	51.230		
11,400.00	8,681.00	13,563.52	10,770.00	59.44	64.85	124.51	-3,145.40	-3,004.72	3,682.82	3,609.28	73.54	50.081		
11,500.00	8,681.00	13,663.52	10,770.00	60.86	66.14	124.51	-3,245.39	-3,003.73	3,682.80	3,607.60	75.20	48.971		
11,600.00	8,681.00	13,763.52	10,770.00	62.30	67.45	124.51	-3,345.39	-3,002.74	3,682.78	3,605.90	76.89	47.898		
11,700.00	8,681.00	13,863.52	10,770.00	63.75	68.77	124.51	-3,445.38	-3,001.75	3,682.77	3,604.18	78.59	46.863		
11,800.00	8,681.00	13,963.52	10,770.00	65.21	70.10	124.51	-3,545.38	-3,000.76	3,682.75	3,602.45	80.30	45.863		
11,900.00	8,681.00	14,063.52	10,770.00	66.68	71.45	124.51	-3,645.37	-2,999.77	3,682.74	3,600.71	82.03	44.897		
12,000.00	8,681.00	14,163.52	10,770.00	68.15	72.82	124.51	-3,745.37	-2,998.78	3,682.72	3,598.96	83.77	43.964		
12,100.00	8,681.00	14,263.52	10,770.00	69.63	74.19	124.51	-3,845.36	-2,997.78	3,682.71	3,597.19	85.52	43.063		
12,200.00	8,681.00	14,363.52	10,770.00	71.13	75.57	124.52	-3,945.36	-2,996.79	3,682.69	3,595.41	87.28	42.193		
12,300.00	8,681.00	14,463.52	10,770.00	72.62	76.97	124.52	-4,045.35	-2,995.80	3,682.68	3,593.62	89.06	41.353		
12,400.00	8,681.00	14,563.52	10,770.00	74.13	78.37	124.52	-4,145.35	-2,994.81	3,682.66	3,591.82	90.84	40.542		
12,500.00	8,681.00	14,663.52	10,770.00	75.64	79.79	124.52	-4,245.35	-2,993.82	3,682.65	3,590.02	92.63	39.758		
12,600.00	8,681.00	14,763.52	10,770.00	77.15	81.21	124.52	-4,345.34	-2,992.83	3,682.63	3,588.20	94.43	38.999		
12,700.00	8,681.00	14,863.52	10,770.00	78.68	82.65	124.52	-4,445.34	-2,991.84	3,682.62	3,586.38	96.24	38.266		
12,800.00	8,681.00	14,963.52	10,770.00	80.20	84.09	124.52	-4,545.33	-2,990.85	3,682.60	3,584.54	98.06	37.556		
12,900.00	8,681.00	15,063.52	10,770.00	81.74	85.53	124.52	-4,645.33	-2,989.86	3,682.58	3,582.70	99.88	36.870		
13,000.00	8,681.00	15,163.52	10,770.00	83.27	86.99	124.52	-4,745.32	-2,988.87	3,682.57	3,580.86	101.71	36.207		
13,100.00	8,681.00	15,263.52	10,770.00	84.81	88.45	124.52	-4,845.32	-2,987.88	3,682.55	3,579.01	103.55	35.564		
13,200.00	8,681.00	15,363.52	10,770.00	86.36	89.92	124.52	-4,945.31	-2,986.88	3,682.54	3,577.15	105.39	34.942		
13,300.00	8,681.00	15,463.52	10,770.00	87.91	91.40	124.52	-5,045.31	-2,985.89	3,682.52	3,575.29	107.24	34.340		
13,400.00	8,681.00	15,563.52	10,770.00	89.46	92.88	124.52	-5,145.30	-2,984.90	3,682.51	3,573.42	109.09	33.756		
13,500.00	8,681.00	15,663.52	10,770.00	91.01	94.37	124.52	-5,245.30	-2,983.91	3,682.49	3,571.54	110.95	33.190		
13,600.00	8,681.00	15,763.52	10,770.00	92.57	95.86	124.52	-5,345.29	-2,982.92	3,682.48	3,569.66	112.82	32.641		
13,700.00	8,681.00	15,863.52	10,770.00	94.13	97.36	124.52	-5,445.29	-2,981.93	3,682.46	3,567.77	114.69	32.109		
13,800.00	8,681.00	15,963.52	10,770.00	95.70	98.86	124.52	-5,545.28	-2,980.94	3,682.45	3,565.88	116.56	31.592		
13,900.00	8,681.00	16,063.52	10,770.00	97.27	100.37	124.52	-5,645.28	-2,979.95	3,682.43	3,563.99	118.44	31.091		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 501H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,000.00	8,681.00	16,163.52	10,770.00	98.84	101.88	124.52	-5,745.27	-2,978.96	3,682.41	3,562.09	120.32	30.604				
14,100.00	8,681.00	16,263.52	10,770.00	100.41	103.39	124.52	-5,845.27	-2,977.97	3,682.40	3,560.19	122.21	30.132				
14,200.00	8,681.00	16,363.52	10,770.00	101.99	104.91	124.52	-5,945.26	-2,976.97	3,682.38	3,558.29	124.10	29.674				
14,300.00	8,681.00	16,463.52	10,770.00	103.57	106.44	124.52	-6,045.26	-2,975.98	3,682.37	3,556.38	125.99	29.228				
14,400.00	8,681.00	16,563.52	10,770.00	105.15	107.97	124.52	-6,145.25	-2,974.99	3,682.35	3,554.47	127.89	28.794				
14,500.00	8,681.00	16,663.52	10,770.00	106.73	109.50	124.52	-6,245.25	-2,974.00	3,682.34	3,552.55	129.79	28.372				
14,600.00	8,681.00	16,763.52	10,770.00	108.31	111.03	124.52	-6,345.24	-2,973.01	3,682.32	3,550.63	131.69	27.963				
14,700.00	8,681.00	16,863.52	10,770.00	109.90	112.57	124.52	-6,445.24	-2,972.02	3,682.31	3,548.72	133.59	27.564				
14,800.00	8,681.00	16,963.52	10,770.00	111.49	114.11	124.52	-6,545.23	-2,971.03	3,682.29	3,546.79	135.50	27.176				
14,900.00	8,681.00	17,063.52	10,770.00	113.08	115.66	124.52	-6,645.23	-2,970.04	3,682.28	3,544.87	137.41	26.798				
15,000.00	8,681.00	17,163.52	10,770.00	114.67	117.21	124.52	-6,745.22	-2,969.05	3,682.26	3,542.94	139.32	26.430				
15,100.00	8,681.00	17,263.52	10,770.00	116.27	118.76	124.52	-6,845.22	-2,968.06	3,682.25	3,541.01	141.24	26.072				
15,200.00	8,681.00	17,363.52	10,770.00	117.86	120.31	124.52	-6,945.21	-2,967.07	3,682.23	3,539.08	143.15	25.722				
15,300.00	8,681.00	17,463.52	10,770.00	119.46	121.86	124.52	-7,045.21	-2,966.07	3,682.21	3,537.14	145.07	25.382				
15,400.00	8,681.00	17,563.52	10,770.00	121.06	123.42	124.52	-7,145.20	-2,965.08	3,682.20	3,535.20	146.99	25.050				
15,500.00	8,681.00	17,663.52	10,770.00	122.66	124.98	124.52	-7,245.20	-2,964.09	3,682.18	3,533.26	148.92	24.726				
15,600.00	8,681.00	17,763.52	10,770.00	124.26	126.55	124.52	-7,345.19	-2,963.10	3,682.17	3,531.32	150.85	24.410				
15,700.00	8,681.00	17,863.52	10,770.00	125.86	128.11	124.52	-7,445.19	-2,962.11	3,682.15	3,529.38	152.77	24.102				
15,800.00	8,681.00	17,963.52	10,770.00	127.46	129.68	124.52	-7,545.18	-2,961.12	3,682.14	3,527.44	154.70	23.802				
15,900.00	8,681.00	18,063.52	10,770.00	129.07	131.25	124.52	-7,645.18	-2,960.13	3,682.12	3,525.49	156.63	23.509				
16,000.00	8,681.00	18,163.52	10,770.00	130.67	132.82	124.52	-7,745.17	-2,959.14	3,682.11	3,523.55	158.56	23.222				
16,100.00	8,681.00	18,263.52	10,770.00	132.28	134.39	124.52	-7,845.17	-2,958.15	3,682.09	3,521.60	160.50	22.942				
16,200.00	8,681.00	18,363.52	10,770.00	133.89	135.97	124.52	-7,945.16	-2,957.16	3,682.08	3,519.64	162.43	22.669				
16,300.00	8,681.00	18,463.52	10,770.00	135.50	137.54	124.52	-8,045.16	-2,956.17	3,682.06	3,517.69	164.37	22.402				
16,400.00	8,681.00	18,563.52	10,770.00	137.11	139.12	124.52	-8,145.15	-2,955.17	3,682.04	3,515.74	166.30	22.141				
16,500.00	8,681.00	18,663.52	10,770.00	138.72	140.70	124.52	-8,245.15	-2,954.18	3,682.03	3,513.79	168.24	21.885				
16,600.00	8,681.00	18,763.52	10,770.00	140.33	142.28	124.52	-8,345.14	-2,953.19	3,682.01	3,511.83	170.18	21.636				
16,700.00	8,681.00	18,863.52	10,770.00	141.95	143.87	124.52	-8,445.14	-2,952.20	3,682.00	3,509.88	172.12	21.392				
16,800.00	8,681.00	18,963.52	10,770.00	143.56	145.45	124.52	-8,545.13	-2,951.21	3,681.98	3,507.92	174.06	21.153				
16,900.00	8,681.00	19,063.52	10,770.00	145.17	147.04	124.52	-8,645.13	-2,950.22	3,681.97	3,505.96	176.01	20.919				
17,000.00	8,681.00	19,163.52	10,770.00	146.79	148.63	124.52	-8,745.12	-2,949.23	3,681.95	3,504.00	177.95	20.691				
17,100.00	8,681.00	19,263.52	10,770.00	148.41	150.22	124.52	-8,845.12	-2,948.24	3,681.94	3,502.04	179.90	20.467				
17,200.00	8,681.00	19,363.52	10,770.00	150.02	151.81	124.52	-8,945.11	-2,947.25	3,681.92	3,500.08	181.84	20.248				
17,300.00	8,681.00	19,463.52	10,770.00	151.64	153.40	124.52	-9,045.11	-2,946.26	3,681.91	3,498.11	183.79	20.033				
17,400.00	8,681.00	19,563.52	10,770.00	153.26	154.99	124.52	-9,145.10	-2,945.27	3,681.89	3,496.15	185.74	19.823				
17,500.00	8,681.00	19,663.52	10,770.00	154.88	156.59	124.52	-9,245.10	-2,944.27	3,681.88	3,494.19	187.69	19.617				
17,600.00	8,681.00	19,763.52	10,770.00	156.50	158.18	124.52	-9,345.09	-2,943.28	3,681.86	3,492.22	189.64	19.415				
17,700.00	8,681.00	19,863.52	10,770.00	158.12	159.78	124.52	-9,445.09	-2,942.29	3,681.84	3,490.26	191.59	19.218				
17,800.00	8,681.00	19,963.52	10,770.00	159.74	161.38	124.52	-9,545.08	-2,941.30	3,681.83	3,488.29	193.54	19.024				
17,900.00	8,681.00	20,063.52	10,770.00	161.36	162.98	124.52	-9,645.08	-2,940.31	3,681.81	3,486.32	195.49	18.834				
18,000.00	8,681.00	20,163.52	10,770.00	162.99	164.58	124.52	-9,745.08	-2,939.32	3,681.80	3,484.36	197.44	18.648				
18,100.00	8,681.00	20,263.52	10,770.00	164.61	166.18	124.52	-9,845.07	-2,938.33	3,681.78	3,482.39	199.39	18.465				
18,200.00	8,681.00	20,363.52	10,770.00	166.23	167.78	124.53	-9,945.07	-2,937.34	3,681.77	3,480.42	201.35	18.286				
18,300.00	8,681.00	20,463.52	10,770.00	167.86	169.38	124.53	-10,045.06	-2,936.35	3,681.75	3,478.45	203.30	18.110				
18,400.00	8,681.00	20,563.52	10,770.00	169.48	170.99	124.53	-10,145.06	-2,935.36	3,681.74	3,476.48	205.25	17.937				
18,500.00	8,681.00	20,663.52	10,770.00	171.11	172.59	124.53	-10,245.05	-2,934.37	3,681.72	3,474.51	207.21	17.768				
18,600.00	8,681.00	20,763.52	10,770.00	172.73	174.20	124.53	-10,345.05	-2,933.37	3,681.71	3,472.54	209.17	17.602				
18,676.61	8,681.00	20,840.14	10,770.00	173.98	175.38	124.53	-10,421.65	-2,932.62	3,681.69	3,471.09	210.60	17.482				
18,681.03	8,681.00	20,841.66	10,770.00	174.05	175.40	124.53	-10,423.18	-2,932.60	3,681.69	3,471.03	210.67	17.476 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	1.80	1.80	0.00	0.00	-90.55	-19.20	-1,995.29	1,995.38					
100.00	100.00	101.80	101.80	0.13	0.13	-90.55	-19.20	-1,995.29	1,995.38	1,995.20	0.18	N/A		
200.00	200.00	201.80	201.80	0.48	0.49	-90.55	-19.20	-1,995.29	1,995.38	1,994.69	0.69	2,896.192		
300.00	300.00	301.80	301.80	0.84	0.85	-90.55	-19.20	-1,995.29	1,995.38	1,994.19	1.20	1,668.496		
400.00	400.00	401.80	401.80	1.20	1.21	-90.55	-19.20	-1,995.29	1,995.38	1,993.68	1.70	1,171.777		
500.00	500.00	501.80	501.80	1.56	1.57	-90.55	-19.20	-1,995.29	1,995.38	1,993.17	2.21	902.960		
600.00	600.00	601.80	601.80	1.92	1.92	-90.55	-19.20	-1,995.29	1,995.38	1,992.67	2.72	734.467		
700.00	700.00	701.80	701.80	2.28	2.28	-90.55	-19.20	-1,995.29	1,995.38	1,992.16	3.22	618.967		
800.00	800.00	801.80	801.80	2.63	2.64	-90.55	-19.20	-1,995.29	1,995.38	1,991.65	3.73	534.857		
900.00	900.00	901.80	901.80	2.99	3.00	-90.55	-19.20	-1,995.29	1,995.38	1,991.14	4.24	470.871		
1,000.00	1,000.00	1,001.80	1,001.80	3.35	3.36	-90.55	-19.20	-1,995.29	1,995.38	1,990.64	4.74	420.559		
1,100.00	1,100.00	1,101.80	1,101.80	3.71	3.72	-90.55	-19.20	-1,995.29	1,995.38	1,990.13	5.25	379.960		
1,200.00	1,200.00	1,201.80	1,201.80	4.07	4.08	-90.55	-19.20	-1,995.29	1,995.38	1,989.62	5.76	346.510		
1,300.00	1,300.00	1,301.80	1,301.80	4.43	4.43	-90.55	-19.20	-1,995.29	1,995.38	1,989.12	6.27	318.473		
1,400.00	1,400.00	1,401.80	1,401.80	4.79	4.79	-90.55	-19.20	-1,995.29	1,995.38	1,988.61	6.77	294.634		
1,500.00	1,500.00	1,501.80	1,501.80	5.14	5.15	-90.55	-19.20	-1,995.29	1,995.38	1,988.10	7.28	274.115		
1,600.00	1,600.00	1,601.80	1,601.80	5.50	5.51	-90.55	-19.20	-1,995.29	1,995.38	1,987.60	7.79	256.267		
1,700.00	1,700.00	1,701.80	1,701.80	5.86	5.87	-90.55	-19.20	-1,995.29	1,995.38	1,987.09	8.29	240.602		
1,800.00	1,800.00	1,801.80	1,801.80	6.22	6.23	-90.55	-19.20	-1,995.29	1,995.38	1,986.58	8.80	226.742		
1,900.00	1,900.00	1,901.80	1,901.80	6.58	6.58	-90.55	-19.20	-1,995.29	1,995.38	1,986.08	9.31	214.391		
2,000.00	2,000.00	2,001.80	2,001.80	6.94	6.94	-90.55	-19.20	-1,995.29	1,995.38	1,985.57	9.81	203.317		
2,100.00	2,100.00	2,101.80	2,101.80	7.29	7.30	-90.55	-19.20	-1,995.29	1,995.38	1,985.06	10.32	193.330		
2,200.00	2,200.00	2,201.80	2,201.80	7.65	7.66	-90.55	-19.20	-1,995.29	1,995.38	1,984.55	10.83	184.279		
2,300.00	2,300.00	2,301.80	2,301.80	8.01	8.02	-90.55	-19.20	-1,995.29	1,995.38	1,984.05	11.34	176.037		
2,400.00	2,400.00	2,401.80	2,401.80	8.37	8.38	-90.55	-19.20	-1,995.29	1,995.38	1,983.54	11.84	168.501		
2,500.00	2,500.00	2,501.80	2,501.80	8.73	8.74	-90.55	-19.20	-1,995.29	1,995.38	1,983.03	12.35	161.583		
2,600.00	2,600.00	2,601.80	2,601.80	9.09	9.09	-90.55	-19.20	-1,995.29	1,995.38	1,982.53	12.86	155.212		
2,700.00	2,700.00	2,701.80	2,701.80	9.45	9.45	-90.55	-19.20	-1,995.29	1,995.38	1,982.02	13.36	149.323		
2,800.00	2,800.00	2,801.80	2,801.80	9.80	9.81	-90.55	-19.20	-1,995.29	1,995.38	1,981.51	13.87	143.865		
2,900.00	2,900.00	2,901.80	2,901.80	10.16	10.17	-90.55	-19.20	-1,995.29	1,995.38	1,981.01	14.38	138.792		
3,000.00	3,000.00	3,001.80	3,001.80	10.52	10.53	-90.55	-19.20	-1,995.29	1,995.38	1,980.50	14.88	134.065		
3,100.00	3,099.99	3,101.79	3,101.79	10.86	10.89	89.84	-19.20	-1,995.29	1,995.38	1,980.00	15.38	129.760		
3,200.00	3,199.91	3,203.57	3,203.57	11.18	11.25	89.96	-19.20	-1,995.29	1,995.37	1,979.51	15.86	125.786		
3,300.00	3,299.69	3,411.72	3,411.61	11.51	11.97	90.38	-19.59	-1,989.44	1,992.57	1,975.99	16.58	120.174		
3,400.00	3,399.27	3,618.35	3,617.52	11.84	12.68	91.02	-20.70	-1,972.45	1,984.42	1,967.17	17.25	115.015		
3,500.00	3,498.57	3,731.25	3,729.66	12.17	13.08	91.55	-21.56	-1,959.43	1,973.04	1,955.29	17.75	111.162		
3,533.06	3,531.33	3,763.82	3,762.01	12.28	13.19	91.73	-21.81	-1,955.65	1,969.29	1,951.38	17.91	109.980		
3,600.00	3,597.62	3,829.74	3,827.48	12.50	13.43	91.99	-22.31	-1,947.99	1,961.73	1,943.51	18.22	107.641		
3,700.00	3,696.65	3,928.21	3,925.28	12.85	13.78	92.38	-23.06	-1,936.56	1,950.53	1,931.82	18.70	104.279		
3,800.00	3,795.68	4,026.68	4,023.08	13.19	14.13	92.77	-23.82	-1,925.12	1,939.41	1,920.22	19.19	101.068		
3,900.00	3,894.70	4,125.15	4,120.88	13.54	14.49	93.17	-24.57	-1,913.68	1,928.38	1,908.71	19.68	98.000		
4,000.00	3,993.73	4,223.62	4,218.68	13.90	14.84	93.57	-25.32	-1,902.24	1,917.45	1,897.29	20.17	95.069		
4,100.00	4,092.76	4,322.09	4,316.48	14.26	15.20	93.98	-26.07	-1,890.80	1,906.62	1,885.96	20.66	92.268		
4,149.39	4,141.67	4,370.73	4,364.79	14.44	15.38	94.18	-26.45	-1,885.15	1,901.31	1,880.40	20.91	90.930		
4,200.00	4,191.83	4,420.60	4,414.33	14.62	15.57	94.30	-26.83	-1,879.36	1,895.86	1,874.70	21.16	89.589		
4,300.00	4,291.19	4,519.38	4,512.43	14.98	15.93	94.48	-27.58	-1,867.88	1,885.01	1,863.35	21.66	87.028		
4,400.00	4,390.81	4,618.39	4,610.77	15.34	16.30	94.58	-28.34	-1,856.38	1,874.01	1,851.85	22.16	84.580		
4,500.00	4,490.62	4,717.58	4,709.28	15.69	16.67	94.59	-29.10	-1,844.86	1,862.83	1,840.18	22.65	82.239		
4,600.00	4,590.56	4,816.87	4,807.89	16.04	17.04	94.53	-29.86	-1,833.33	1,851.46	1,828.31	23.14	80.000		
4,682.45	4,673.00	4,898.76	4,889.22	16.32	17.34	-85.94	-30.48	-1,823.81	1,841.93	1,818.38	23.55	78.218		
4,700.00	4,690.55	4,916.19	4,906.54	16.38	17.41	-85.94	-30.61	-1,821.79	1,839.88	1,816.25	23.64	77.844		
4,800.00	4,790.55	5,015.51	5,005.18	16.73	17.78	-85.94	-31.37	-1,810.25	1,828.24	1,804.11	24.13	75.768		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,900.00	4,890.55	5,114.83	5,103.83	17.08	18.16	-85.94	-32.13	-1,798.71	1,816.60	1,791.98	24.62	73.773		
5,000.00	4,990.55	5,214.15	5,202.47	17.43	18.54	-85.93	-32.89	-1,787.18	1,804.96	1,779.84	25.12	71.855		
5,100.00	5,090.55	5,313.47	5,301.12	17.78	18.91	-85.93	-33.65	-1,775.64	1,793.32	1,767.70	25.62	70.009		
5,200.00	5,190.55	5,412.79	5,399.76	18.13	19.29	-85.93	-34.41	-1,764.10	1,781.68	1,755.57	26.11	68.232		
5,300.00	5,290.55	5,512.11	5,498.41	18.48	19.67	-85.93	-35.17	-1,752.56	1,770.04	1,743.43	26.61	66.520		
5,400.00	5,390.55	5,611.43	5,597.05	18.83	20.05	-85.93	-35.93	-1,741.03	1,758.40	1,731.29	27.11	64.870		
5,500.00	5,490.55	5,710.75	5,695.70	19.19	20.43	-85.92	-36.69	-1,729.49	1,746.75	1,719.15	27.60	63.278		
5,600.00	5,590.55	5,810.07	5,794.34	19.54	20.81	-85.92	-37.45	-1,717.95	1,735.11	1,707.01	28.10	61.741		
5,700.00	5,690.55	5,909.39	5,892.99	19.89	21.19	-85.92	-38.20	-1,706.41	1,723.47	1,694.87	28.60	60.257		
5,800.00	5,790.55	6,008.71	5,991.63	20.24	21.58	-85.92	-38.96	-1,694.88	1,711.83	1,682.73	29.10	58.823		
5,900.00	5,890.55	6,108.03	6,090.27	20.59	21.96	-85.92	-39.72	-1,683.34	1,700.19	1,670.59	29.60	57.436		
6,000.00	5,990.55	6,207.35	6,188.92	20.95	22.34	-85.91	-40.48	-1,671.80	1,688.55	1,658.45	30.10	56.095		
6,100.00	6,090.55	6,306.67	6,287.56	21.30	22.73	-85.91	-41.24	-1,660.27	1,676.91	1,646.30	30.60	54.798		
6,200.00	6,190.55	6,405.99	6,386.21	21.65	23.11	-85.91	-42.00	-1,648.73	1,665.26	1,634.16	31.10	53.541		
6,300.00	6,290.55	6,505.31	6,484.85	22.00	23.50	-85.91	-42.76	-1,637.19	1,653.62	1,622.02	31.60	52.323		
6,400.00	6,390.55	6,604.63	6,583.50	22.36	23.88	-85.90	-43.52	-1,625.65	1,641.98	1,609.88	32.11	51.144		
6,500.00	6,490.55	6,703.95	6,682.14	22.71	24.27	-85.90	-44.28	-1,614.12	1,630.34	1,597.73	32.61	50.000		
6,600.00	6,590.55	6,803.27	6,780.79	23.06	24.66	-85.90	-45.04	-1,602.58	1,618.70	1,585.59	33.11	48.890		
6,700.00	6,690.55	6,902.59	6,879.43	23.42	25.05	-85.90	-45.80	-1,591.04	1,607.06	1,573.45	33.61	47.813		
6,800.00	6,790.55	7,001.91	6,978.08	23.77	25.43	-85.89	-46.55	-1,579.50	1,595.42	1,561.30	34.11	46.767		
6,900.00	6,890.55	7,101.23	7,076.72	24.13	25.82	-85.89	-47.31	-1,567.97	1,583.78	1,549.16	34.62	45.752		
7,000.00	6,990.55	7,178.52	7,153.53	24.48	26.12	-85.89	-47.88	-1,559.36	1,572.66	1,537.57	35.09	44.814		
7,100.00	7,090.55	7,249.11	7,223.81	24.83	26.39	-85.89	-48.31	-1,552.79	1,563.33	1,527.78	35.55	43.971		
7,200.00	7,190.55	7,319.91	7,294.42	25.19	26.66	-85.89	-48.66	-1,547.50	1,555.85	1,519.84	36.00	43.212		
7,300.00	7,290.55	7,400.00	7,374.38	25.54	26.95	-85.89	-48.95	-1,543.09	1,550.25	1,513.79	36.47	42.511		
7,400.00	7,390.55	7,462.00	7,436.34	25.90	27.17	-85.89	-49.10	-1,540.83	1,546.44	1,509.56	36.88	41.933		
7,500.00	7,490.55	7,533.19	7,507.51	26.25	27.42	-85.89	-49.19	-1,539.47	1,544.53	1,507.23	37.30	41.408		
7,570.40	7,560.95	7,588.43	7,562.75	26.50	27.61	-85.89	-49.20	-1,539.29	1,544.27	1,506.66	37.61	41.064		
7,600.00	7,590.55	7,618.03	7,592.35	26.61	27.71	-85.89	-49.20	-1,539.29	1,544.27	1,506.52	37.75	40.904		
7,700.00	7,690.55	7,718.03	7,692.35	26.96	28.05	-85.89	-49.20	-1,539.29	1,544.27	1,506.02	38.25	40.372		
7,800.00	7,790.55	7,818.03	7,792.35	27.32	28.39	-85.89	-49.20	-1,539.29	1,544.27	1,505.52	38.75	39.853		
7,900.00	7,890.55	7,918.03	7,892.35	27.67	28.73	-85.89	-49.20	-1,539.29	1,544.27	1,505.02	39.25	39.348		
8,000.00	7,990.55	8,018.03	7,992.35	28.03	29.07	-85.89	-49.20	-1,539.29	1,544.27	1,504.52	39.75	38.854		
8,100.00	8,090.55	8,118.03	8,092.35	28.38	29.41	-85.89	-49.20	-1,539.29	1,544.27	1,504.03	40.24	38.373		
8,117.49	8,108.04	8,135.52	8,109.84	28.44	29.47	-85.89	-49.20	-1,539.29	1,544.27	1,503.94	40.33	38.290 CC		
8,150.00	8,140.53	8,168.01	8,142.33	28.56	29.59	94.70	-49.20	-1,539.29	1,544.35	1,503.85	40.49	38.140 ES		
8,200.00	8,190.27	8,217.74	8,192.07	28.73	29.76	94.84	-49.20	-1,539.29	1,544.76	1,504.03	40.74	37.921		
8,250.00	8,239.37	8,266.85	8,241.17	28.91	29.92	95.10	-49.20	-1,539.29	1,545.59	1,504.60	40.98	37.713		
8,300.00	8,287.48	8,314.96	8,289.28	29.09	30.09	95.45	-49.20	-1,539.29	1,546.88	1,505.66	41.23	37.519		
8,350.00	8,334.22	8,361.70	8,336.02	29.27	30.25	95.87	-49.20	-1,539.29	1,548.75	1,507.28	41.47	37.342		
8,400.00	8,379.24	8,406.72	8,381.04	29.46	30.40	96.34	-49.20	-1,539.29	1,551.32	1,509.60	41.72	37.185		
8,450.00	8,422.20	8,449.68	8,424.00	29.66	30.55	96.80	-49.20	-1,539.29	1,554.72	1,512.76	41.96	37.050		
8,500.00	8,462.76	8,490.24	8,464.56	29.86	30.69	97.23	-49.20	-1,539.29	1,559.12	1,516.91	42.20	36.942		
8,550.00	8,500.63	8,528.11	8,502.43	30.07	30.82	97.59	-49.20	-1,539.29	1,564.65	1,522.21	42.44	36.865		
8,600.00	8,535.51	8,562.98	8,537.31	30.28	30.94	97.81	-49.20	-1,539.29	1,571.49	1,528.81	42.68	36.821		
8,650.00	8,567.13	8,594.61	8,568.93	30.51	31.05	97.88	-49.20	-1,539.29	1,579.76	1,536.84	42.91	36.813		
8,700.00	8,595.26	8,622.74	8,597.06	30.75	31.15	97.73	-49.20	-1,539.29	1,589.58	1,546.43	43.14	36.845		
8,750.00	8,619.68	8,647.16	8,621.48	30.99	31.23	97.35	-49.20	-1,539.29	1,601.03	1,557.67	43.37	36.919		
8,800.00	8,640.21	8,667.69	8,642.01	31.25	31.30	96.68	-49.20	-1,539.29	1,614.17	1,570.59	43.58	37.037		
8,850.00	8,656.69	8,684.17	8,658.49	31.52	31.36	95.71	-49.20	-1,539.29	1,629.02	1,585.23	43.79	37.200		
8,900.00	8,668.99	8,696.47	8,670.79	31.80	31.40	94.40	-49.20	-1,539.29	1,645.52	1,601.53	43.99	37.407		
8,950.00	8,677.03	8,704.51	8,678.83	32.09	31.43	92.76	-49.20	-1,539.29	1,663.61	1,619.44	44.18	37.659		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,000.00	8,680.73	8,708.21	8,682.53	32.38	31.44	90.77	-49.20	-1,539.29	1,683.16	1,638.82	44.35	37.955		
9,017.49	8,681.00	8,708.48	8,682.80	32.49	31.44	90.00	-49.20	-1,539.29	1,690.32	1,645.91	44.40	38.068		
9,100.00	8,681.00	8,708.48	8,682.80	33.00	31.44	90.00	-49.20	-1,539.29	1,726.06	1,681.39	44.67	38.642		
9,200.00	8,681.00	8,708.48	8,682.80	33.70	31.44	90.00	-49.20	-1,539.29	1,773.57	1,728.57	44.99	39.417		
9,300.00	8,681.00	8,708.48	8,682.80	34.46	31.44	90.00	-49.20	-1,539.29	1,825.32	1,780.00	45.32	40.276		
9,400.00	8,681.00	8,708.48	8,682.80	35.28	31.44	90.00	-49.20	-1,539.29	1,880.96	1,835.33	45.64	41.214		
9,500.00	8,681.00	8,708.48	8,682.80	36.15	31.44	90.00	-49.20	-1,539.29	1,940.17	1,894.23	45.95	42.226		
9,600.00	8,681.00	8,708.48	8,682.80	37.08	31.44	90.00	-49.20	-1,539.29	2,002.63	1,956.39	46.24	43.309		
9,700.00	8,681.00	8,708.48	8,682.80	38.06	31.44	90.00	-49.20	-1,539.29	2,068.04	2,021.52	46.52	44.455		
9,800.00	8,681.00	8,708.48	8,682.80	39.08	31.44	90.00	-49.20	-1,539.29	2,136.12	2,089.34	46.78	45.660		
9,900.00	8,681.00	8,708.48	8,682.80	40.15	31.44	90.00	-49.20	-1,539.29	2,206.64	2,159.61	47.03	46.921		
10,000.00	8,681.00	8,708.48	8,682.80	41.25	31.44	90.00	-49.20	-1,539.29	2,279.37	2,232.11	47.26	48.231		
10,100.00	8,681.00	8,708.48	8,682.80	42.39	31.44	90.00	-49.20	-1,539.29	2,354.09	2,306.62	47.47	49.587		
10,200.00	8,681.00	8,708.48	8,682.80	43.56	31.44	90.00	-49.20	-1,539.29	2,430.64	2,382.97	47.67	50.984		
10,300.00	8,681.00	8,708.48	8,682.80	44.77	31.44	90.00	-49.20	-1,539.29	2,508.84	2,460.98	47.86	52.420		
10,400.00	8,681.00	12,600.40	10,739.00	46.00	51.57	143.19	-2,130.73	-1,518.51	2,568.12	2,518.13	50.00	51.367		
10,500.00	8,681.00	12,700.40	10,739.00	47.25	52.69	143.19	-2,230.73	-1,517.52	2,568.11	2,516.96	51.14	50.213		
10,600.00	8,681.00	12,800.40	10,739.00	48.53	53.84	143.19	-2,330.72	-1,516.52	2,568.09	2,515.77	52.32	49.084		
10,700.00	8,681.00	12,900.40	10,739.00	49.83	55.01	143.19	-2,430.72	-1,515.52	2,568.08	2,514.56	53.52	47.984		
10,800.00	8,681.00	13,000.40	10,739.00	51.16	56.21	143.20	-2,530.71	-1,514.52	2,568.06	2,513.32	54.74	46.914		
10,900.00	8,681.00	13,100.40	10,739.00	52.50	57.43	143.20	-2,630.71	-1,513.52	2,568.04	2,512.06	55.98	45.873		
11,000.00	8,681.00	13,200.40	10,739.00	53.86	58.68	143.20	-2,730.70	-1,512.52	2,568.03	2,510.78	57.24	44.861		
11,100.00	8,681.00	13,300.40	10,739.00	55.23	59.94	143.20	-2,830.70	-1,511.53	2,568.01	2,509.49	58.52	43.879		
11,200.00	8,681.00	13,400.40	10,739.00	56.62	61.22	143.20	-2,930.69	-1,510.53	2,568.00	2,508.18	59.82	42.928		
11,300.00	8,681.00	13,500.40	10,739.00	58.02	62.52	143.20	-3,030.69	-1,509.53	2,567.98	2,506.85	61.13	42.006		
11,400.00	8,681.00	13,600.40	10,739.00	59.44	63.83	143.20	-3,130.68	-1,508.53	2,567.97	2,505.51	62.46	41.113		
11,500.00	8,681.00	13,700.40	10,739.00	60.86	65.16	143.20	-3,230.68	-1,507.53	2,567.95	2,504.15	63.80	40.248		
11,600.00	8,681.00	13,800.40	10,739.00	62.30	66.50	143.20	-3,330.67	-1,506.54	2,567.94	2,502.78	65.16	39.410		
11,700.00	8,681.00	13,900.40	10,739.00	63.75	67.86	143.20	-3,430.67	-1,505.54	2,567.92	2,501.39	66.53	38.599		
11,800.00	8,681.00	14,000.40	10,739.00	65.21	69.23	143.20	-3,530.66	-1,504.54	2,567.91	2,500.00	67.91	37.815		
11,900.00	8,681.00	14,100.40	10,739.00	66.68	70.61	143.20	-3,630.66	-1,503.54	2,567.89	2,498.59	69.29	37.057		
12,000.00	8,681.00	14,200.40	10,739.00	68.15	72.01	143.20	-3,730.65	-1,502.54	2,567.87	2,497.18	70.70	36.323		
12,100.00	8,681.00	14,300.40	10,739.00	69.63	73.41	143.20	-3,830.65	-1,501.55	2,567.86	2,495.75	72.11	35.612		
12,200.00	8,681.00	14,400.40	10,739.00	71.13	74.83	143.20	-3,930.64	-1,500.55	2,567.84	2,494.32	73.52	34.926		
12,300.00	8,681.00	14,500.40	10,739.00	72.62	76.25	143.20	-4,030.64	-1,499.55	2,567.83	2,492.88	74.95	34.261		
12,400.00	8,681.00	14,600.40	10,739.00	74.13	77.68	143.20	-4,130.63	-1,498.55	2,567.81	2,491.43	76.38	33.618		
12,500.00	8,681.00	14,700.40	10,739.00	75.64	79.13	143.20	-4,230.63	-1,497.55	2,567.80	2,489.97	77.82	32.995		
12,600.00	8,681.00	14,800.40	10,739.00	77.15	80.58	143.20	-4,330.62	-1,496.55	2,567.78	2,488.51	79.27	32.392		
12,700.00	8,681.00	14,900.40	10,739.00	78.68	82.03	143.20	-4,430.62	-1,495.56	2,567.77	2,487.04	80.73	31.808		
12,800.00	8,681.00	15,000.40	10,739.00	80.20	83.50	143.20	-4,530.61	-1,494.56	2,567.75	2,485.56	82.19	31.243		
12,900.00	8,681.00	15,100.40	10,739.00	81.74	84.97	143.21	-4,630.61	-1,493.56	2,567.73	2,484.08	83.65	30.695		
13,000.00	8,681.00	15,200.40	10,739.00	83.27	86.45	143.21	-4,730.60	-1,492.56	2,567.72	2,482.59	85.12	30.164		
13,100.00	8,681.00	15,300.40	10,739.00	84.81	87.93	143.21	-4,830.60	-1,491.56	2,567.70	2,481.10	86.60	29.649		
13,200.00	8,681.00	15,400.40	10,739.00	86.36	89.42	143.21	-4,930.59	-1,490.57	2,567.69	2,479.60	88.09	29.150		
13,300.00	8,681.00	15,500.40	10,739.00	87.91	90.92	143.21	-5,030.59	-1,489.57	2,567.67	2,478.10	89.57	28.667		
13,400.00	8,681.00	15,600.40	10,739.00	89.46	92.42	143.21	-5,130.58	-1,488.57	2,567.66	2,476.60	91.06	28.198		
13,500.00	8,681.00	15,700.40	10,739.00	91.01	93.92	143.21	-5,230.58	-1,487.57	2,567.64	2,475.09	92.55	27.742		
13,600.00	8,681.00	15,800.40	10,739.00	92.57	95.43	143.21	-5,330.57	-1,486.57	2,567.63	2,473.57	94.06	27.299		
13,700.00	8,681.00	15,900.40	10,739.00	94.13	96.95	143.21	-5,430.57	-1,485.58	2,567.61	2,472.05	95.56	26.870		
13,800.00	8,681.00	16,000.40	10,739.00	95.70	98.47	143.21	-5,530.56	-1,484.58	2,567.59	2,470.53	97.06	26.454		
13,900.00	8,681.00	16,100.40	10,739.00	97.27	99.99	143.21	-5,630.56	-1,483.58	2,567.58	2,469.01	98.57	26.049		
14,000.00	8,681.00	16,200.40	10,739.00	98.84	101.52	143.21	-5,730.55	-1,482.58	2,567.56	2,467.48	100.08	25.655		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 502H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,100.00	8,681.00	16,300.40	10,739.00	100.41	103.05	143.21	-5,830.55	-1,481.58	2,567.55	2,465.95	101.60	25.272				
14,200.00	8,681.00	16,400.40	10,739.00	101.99	104.59	143.21	-5,930.54	-1,480.59	2,567.53	2,464.42	103.11	24.900				
14,300.00	8,681.00	16,500.40	10,739.00	103.57	106.13	143.21	-6,030.54	-1,479.59	2,567.52	2,462.88	104.63	24.538				
14,400.00	8,681.00	16,600.40	10,739.00	105.15	107.67	143.21	-6,130.53	-1,478.59	2,567.50	2,461.35	106.15	24.186				
14,500.00	8,681.00	16,700.40	10,739.00	106.73	109.21	143.21	-6,230.53	-1,477.59	2,567.49	2,459.81	107.68	23.844				
14,600.00	8,681.00	16,800.40	10,739.00	108.31	110.76	143.21	-6,330.52	-1,476.59	2,567.47	2,458.26	109.21	23.510				
14,700.00	8,681.00	16,900.40	10,739.00	109.90	112.31	143.21	-6,430.52	-1,475.59	2,567.46	2,456.72	110.74	23.185				
14,800.00	8,681.00	17,000.40	10,739.00	111.49	113.87	143.21	-6,530.51	-1,474.60	2,567.44	2,455.17	112.27	22.869				
14,900.00	8,681.00	17,100.40	10,739.00	113.08	115.42	143.21	-6,630.51	-1,473.60	2,567.42	2,453.63	113.80	22.561				
15,000.00	8,681.00	17,200.40	10,739.00	114.67	116.98	143.21	-6,730.50	-1,472.60	2,567.41	2,452.07	115.33	22.261				
15,100.00	8,681.00	17,300.40	10,739.00	116.27	118.54	143.22	-6,830.50	-1,471.60	2,567.39	2,450.52	116.87	21.968				
15,200.00	8,681.00	17,400.40	10,739.00	117.86	120.11	143.22	-6,930.49	-1,470.60	2,567.38	2,448.97	118.41	21.683				
15,300.00	8,681.00	17,500.40	10,739.00	119.46	121.68	143.22	-7,030.49	-1,469.61	2,567.36	2,447.42	119.94	21.405				
15,400.00	8,681.00	17,600.40	10,739.00	121.06	123.24	143.22	-7,130.48	-1,468.61	2,567.35	2,445.86	121.49	21.133				
15,500.00	8,681.00	17,700.40	10,739.00	122.66	124.82	143.22	-7,230.48	-1,467.61	2,567.33	2,444.30	123.03	20.867				
15,600.00	8,681.00	17,800.40	10,739.00	124.26	126.39	143.22	-7,330.47	-1,466.61	2,567.32	2,442.74	124.57	20.609				
15,700.00	8,681.00	17,900.40	10,739.00	125.86	127.96	143.22	-7,430.47	-1,465.61	2,567.30	2,441.18	126.12	20.357				
15,800.00	8,681.00	18,000.40	10,739.00	127.46	129.54	143.22	-7,530.46	-1,464.62	2,567.28	2,439.62	127.66	20.110				
15,900.00	8,681.00	18,100.40	10,739.00	129.07	131.12	143.22	-7,630.46	-1,463.62	2,567.27	2,438.06	129.21	19.869				
16,000.00	8,681.00	18,200.40	10,739.00	130.67	132.70	143.22	-7,730.45	-1,462.62	2,567.25	2,436.50	130.76	19.634				
16,100.00	8,681.00	18,300.40	10,739.00	132.28	134.28	143.22	-7,830.45	-1,461.62	2,567.24	2,434.93	132.30	19.404				
16,200.00	8,681.00	18,400.40	10,739.00	133.89	135.87	143.22	-7,930.44	-1,460.62	2,567.22	2,433.37	133.85	19.179				
16,300.00	8,681.00	18,500.40	10,739.00	135.50	137.45	143.22	-8,030.44	-1,459.63	2,567.21	2,431.80	135.40	18.960				
16,400.00	8,681.00	18,600.40	10,739.00	137.11	139.04	143.22	-8,130.43	-1,458.63	2,567.19	2,430.24	136.96	18.745				
16,500.00	8,681.00	18,700.40	10,739.00	138.72	140.63	143.22	-8,230.43	-1,457.63	2,567.18	2,428.67	138.51	18.534				
16,600.00	8,681.00	18,800.40	10,739.00	140.33	142.22	143.22	-8,330.42	-1,456.63	2,567.16	2,427.10	140.06	18.329				
16,700.00	8,681.00	18,900.40	10,739.00	141.95	143.81	143.22	-8,430.42	-1,455.63	2,567.15	2,425.53	141.61	18.128				
16,800.00	8,681.00	19,000.40	10,739.00	143.56	145.40	143.22	-8,530.41	-1,454.63	2,567.13	2,423.96	143.17	17.931				
16,900.00	8,681.00	19,100.40	10,739.00	145.17	146.99	143.22	-8,630.41	-1,453.64	2,567.11	2,422.39	144.72	17.738				
17,000.00	8,681.00	19,200.40	10,739.00	146.79	148.59	143.22	-8,730.40	-1,452.64	2,567.10	2,420.82	146.28	17.550				
17,100.00	8,681.00	19,300.40	10,739.00	148.41	150.19	143.22	-8,830.40	-1,451.64	2,567.08	2,419.25	147.83	17.365				
17,200.00	8,681.00	19,400.40	10,739.00	150.02	151.78	143.22	-8,930.39	-1,450.64	2,567.07	2,417.68	149.38	17.184				
17,300.00	8,681.00	19,500.40	10,739.00	151.64	153.38	143.23	-9,030.39	-1,449.64	2,567.05	2,416.11	150.94	17.007				
17,400.00	8,681.00	19,600.40	10,739.00	153.26	154.98	143.23	-9,130.38	-1,448.65	2,567.04	2,414.54	152.50	16.833				
17,500.00	8,681.00	19,700.40	10,739.00	154.88	156.58	143.23	-9,230.38	-1,447.65	2,567.02	2,412.97	154.06	16.663				
17,600.00	8,681.00	19,800.40	10,739.00	156.50	158.19	143.23	-9,330.37	-1,446.65	2,567.01	2,411.39	155.61	16.496				
17,700.00	8,681.00	19,900.40	10,739.00	158.12	159.79	143.23	-9,430.37	-1,445.65	2,566.99	2,409.82	157.17	16.333				
17,800.00	8,681.00	20,000.40	10,739.00	159.74	161.39	143.23	-9,530.36	-1,444.65	2,566.97	2,408.25	158.73	16.172				
17,900.00	8,681.00	20,100.40	10,739.00	161.36	163.00	143.23	-9,630.36	-1,443.66	2,566.96	2,406.67	160.29	16.015				
18,000.00	8,681.00	20,200.40	10,739.00	162.99	164.60	143.23	-9,730.35	-1,442.66	2,566.94	2,405.10	161.84	15.861				
18,100.00	8,681.00	20,300.40	10,739.00	164.61	166.21	143.23	-9,830.35	-1,441.66	2,566.93	2,403.53	163.40	15.709				
18,200.00	8,681.00	20,400.40	10,739.00	166.23	167.82	143.23	-9,930.34	-1,440.66	2,566.91	2,401.95	164.96	15.561				
18,300.00	8,681.00	20,500.40	10,739.00	167.86	169.43	143.23	-10,030.34	-1,439.66	2,566.90	2,400.38	166.52	15.415				
18,400.00	8,681.00	20,600.40	10,739.00	169.48	171.03	143.23	-10,130.33	-1,438.67	2,566.88	2,398.80	168.08	15.272				
18,500.00	8,681.00	20,700.40	10,739.00	171.11	172.65	143.23	-10,230.33	-1,437.67	2,566.87	2,397.23	169.64	15.131				
18,600.00	8,681.00	20,800.40	10,739.00	172.73	174.26	143.23	-10,330.32	-1,436.67	2,566.85	2,395.65	171.20	14.994				
18,676.95	8,681.00	20,877.34	10,739.00	173.98	175.50	143.23	-10,407.27	-1,435.90	2,566.84	2,394.44	172.40	14.889				
18,681.03	8,681.00	20,879.44	10,739.00	174.05	175.53	143.23	-10,409.36	-1,435.88	2,566.84	2,394.40	172.44	14.885 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.55	-0.48	-49.99	50.00					
100.00	100.00	99.30	99.30	0.13	0.12	-90.55	-0.48	-49.99	49.99	49.82	0.18	282.538		
200.00	200.00	199.30	199.30	0.48	0.48	-90.55	-0.48	-49.99	49.99	49.31	0.68	73.223		
300.00	300.00	299.30	299.30	0.84	0.84	-90.55	-0.48	-49.99	49.99	48.80	1.19	42.021		
400.00	400.00	399.30	399.30	1.20	1.20	-90.55	-0.48	-49.99	49.99	48.30	1.70	29.465		
500.00	500.00	499.30	499.30	1.56	1.56	-90.55	-0.48	-49.99	49.99	47.79	2.20	22.687		
600.00	600.00	599.30	599.30	1.92	1.92	-90.55	-0.48	-49.99	49.99	47.28	2.71	18.444		
700.00	700.00	699.30	699.30	2.28	2.27	-90.55	-0.48	-49.99	49.99	46.77	3.22	15.538		
800.00	800.00	799.30	799.30	2.63	2.63	-90.55	-0.48	-49.99	49.99	46.27	3.72	13.423		
900.00	900.00	899.30	899.30	2.99	2.99	-90.55	-0.48	-49.99	49.99	45.76	4.23	11.815		
1,000.00	1,000.00	999.30	999.30	3.35	3.35	-90.55	-0.48	-49.99	49.99	45.25	4.74	10.550		
1,100.00	1,100.00	1,099.30	1,099.30	3.71	3.71	-90.55	-0.48	-49.99	49.99	44.75	5.25	9.531		
1,200.00	1,200.00	1,199.30	1,199.30	4.07	4.07	-90.55	-0.48	-49.99	49.99	44.24	5.75	8.691		
1,300.00	1,300.00	1,299.30	1,299.30	4.43	4.42	-90.55	-0.48	-49.99	49.99	43.73	6.26	7.987		
1,400.00	1,400.00	1,399.30	1,399.30	4.79	4.78	-90.55	-0.48	-49.99	49.99	43.23	6.77	7.389		
1,500.00	1,500.00	1,499.30	1,499.30	5.14	5.14	-90.55	-0.48	-49.99	49.99	42.72	7.27	6.874		
1,600.00	1,600.00	1,599.30	1,599.30	5.50	5.50	-90.55	-0.48	-49.99	49.99	42.21	7.78	6.426		
1,700.00	1,700.00	1,699.30	1,699.30	5.86	5.86	-90.55	-0.48	-49.99	49.99	41.71	8.29	6.033		
1,800.00	1,800.00	1,799.30	1,799.30	6.22	6.22	-90.55	-0.48	-49.99	49.99	41.20	8.79	5.685		
1,900.00	1,900.00	1,899.30	1,899.30	6.58	6.58	-90.55	-0.48	-49.99	49.99	40.69	9.30	5.375		
2,000.00	2,000.00	1,999.30	1,999.30	6.94	6.93	-90.55	-0.48	-49.99	49.99	40.18	9.81	5.097		
2,100.00	2,100.00	2,099.30	2,099.30	7.29	7.29	-90.55	-0.48	-49.99	49.99	39.68	10.31	4.847		
2,200.00	2,200.00	2,199.30	2,199.30	7.65	7.65	-90.55	-0.48	-49.99	49.99	39.17	10.82	4.620		
2,300.00	2,300.00	2,299.30	2,299.30	8.01	8.01	-90.55	-0.48	-49.99	49.99	38.66	11.33	4.413		
2,400.00	2,400.00	2,399.30	2,399.30	8.37	8.37	-90.55	-0.48	-49.99	49.99	38.16	11.84	4.224		
2,500.00	2,500.00	2,499.30	2,499.30	8.73	8.73	-90.55	-0.48	-49.99	49.99	37.65	12.34	4.050		
2,600.00	2,600.00	2,599.30	2,599.30	9.09	9.08	-90.55	-0.48	-49.99	49.99	37.14	12.85	3.891		
2,700.00	2,700.00	2,699.30	2,699.30	9.45	9.44	-90.55	-0.48	-49.99	49.99	36.64	13.36	3.743		
2,800.00	2,800.00	2,799.30	2,799.30	9.80	9.80	-90.55	-0.48	-49.99	49.99	36.13	13.86	3.606		
2,900.00	2,900.00	2,899.30	2,899.30	10.16	10.16	-90.55	-0.48	-49.99	49.99	35.62	14.37	3.479		
3,000.00	3,000.00	2,999.30	2,999.30	10.52	10.52	-90.55	-0.48	-49.99	49.99	35.11	14.88	3.360		
3,035.78	3,035.78	3,035.08	3,035.08	10.64	10.65	90.00	-0.48	-49.99	49.99	34.94	15.05	3.321 CC		
3,100.00	3,099.99	3,099.29	3,099.29	10.86	10.88	91.31	-0.48	-49.99	50.01	34.63	15.37	3.253		
3,200.00	3,199.91	3,199.21	3,199.21	11.18	11.24	95.78	-0.48	-49.99	50.25	34.40	15.85	3.170 ES		
3,300.00	3,299.69	3,298.99	3,298.99	11.51	11.59	103.03	-0.48	-49.99	51.32	34.99	16.34	3.142 SF		
3,400.00	3,399.27	3,398.57	3,398.57	11.84	11.95	112.44	-0.48	-49.99	54.13	37.31	16.82	3.218		
3,500.00	3,498.57	3,497.87	3,497.87	12.17	12.31	122.81	-0.48	-49.99	59.63	42.33	17.30	3.446		
3,533.06	3,531.33	3,530.63	3,530.63	12.28	12.42	126.21	-0.48	-49.99	62.18	44.71	17.47	3.560		
3,600.00	3,597.62	3,596.92	3,596.92	12.50	12.66	132.51	-0.48	-49.99	68.12	50.33	17.79	3.829		
3,700.00	3,696.65	3,695.95	3,695.95	12.85	13.02	140.01	-0.48	-49.99	78.24	59.97	18.28	4.281		
3,800.00	3,795.68	3,794.98	3,794.98	13.19	13.37	145.73	-0.48	-49.99	89.39	70.62	18.76	4.764		
3,900.00	3,894.70	3,894.00	3,894.00	13.54	13.73	150.16	-0.48	-49.99	101.22	81.96	19.25	5.257		
4,000.00	3,993.73	3,993.03	3,993.03	13.90	14.08	153.65	-0.48	-49.99	113.52	93.78	19.74	5.750		
4,100.00	4,092.76	4,092.06	4,092.06	14.26	14.44	156.45	-0.48	-49.99	126.16	105.93	20.23	6.236		
4,149.39	4,141.67	4,140.97	4,140.97	14.44	14.61	157.64	-0.48	-49.99	132.49	112.02	20.47	6.472		
4,200.00	4,191.83	4,191.13	4,191.13	14.62	14.79	158.72	-0.48	-49.99	138.73	118.01	20.72	6.695		
4,300.00	4,291.19	4,290.49	4,290.49	14.98	15.15	160.35	-0.48	-49.99	149.32	128.11	21.21	7.039		
4,400.00	4,390.81	4,390.11	4,390.11	15.34	15.50	161.45	-0.48	-49.99	157.54	135.83	21.71	7.257		
4,500.00	4,490.62	4,489.92	4,489.92	15.69	15.86	162.16	-0.48	-49.99	163.32	141.12	22.20	7.356		
4,600.00	4,590.56	4,592.89	4,592.88	16.04	16.22	162.80	-1.06	-49.02	165.80	143.10	22.70	7.305		
4,682.45	4,673.00	4,677.69	4,677.62	16.32	16.50	-16.78	-2.60	-46.46	164.49	141.39	23.10	7.122		
4,700.00	4,690.55	4,695.22	4,695.14	16.38	16.56	-16.60	-2.99	-45.80	163.92	140.74	23.18	7.071		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 503H - OH - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
4,800.00	4,790.55	4,795.12	4,794.95	16.73	16.89	-15.55	-5.24	-42.06	160.72	137.05	23.67	6.791				
4,900.00	4,890.55	4,895.03	4,894.76	17.08	17.23	-14.45	-7.49	-38.31	157.58	133.43	24.15	6.525				
5,000.00	4,990.55	4,994.93	4,994.57	17.43	17.56	-13.32	-9.73	-34.57	154.49	129.86	24.64	6.271				
5,100.00	5,090.55	5,094.84	5,094.38	17.78	17.90	-12.13	-11.98	-30.83	151.47	126.35	25.12	6.029				
5,200.00	5,190.55	5,194.74	5,194.19	18.13	18.24	-10.90	-14.22	-27.08	148.52	122.91	25.61	5.799				
5,300.00	5,290.55	5,294.65	5,293.99	18.48	18.58	-9.62	-16.47	-23.34	145.64	119.54	26.10	5.580				
5,400.00	5,390.55	5,394.55	5,393.80	18.83	18.92	-8.29	-18.72	-19.60	142.83	116.24	26.59	5.371				
5,500.00	5,490.55	5,494.46	5,493.61	19.19	19.26	-6.91	-20.96	-15.85	140.11	113.02	27.08	5.173				
5,600.00	5,590.55	5,594.36	5,593.42	19.54	19.60	-5.47	-23.21	-12.11	137.46	109.89	27.57	4.985				
5,700.00	5,690.55	5,694.26	5,693.23	19.89	19.94	-3.98	-25.46	-8.36	134.91	106.85	28.07	4.807				
5,800.00	5,790.55	5,794.17	5,793.04	20.24	20.29	-2.43	-27.70	-4.62	132.46	103.90	28.56	4.638				
5,900.00	5,890.55	5,893.01	5,891.81	20.59	20.63	-1.01	-29.69	-1.30	130.34	101.29	29.05	4.487				
6,000.00	5,990.55	5,991.25	5,990.03	20.95	20.97	-0.44	-30.47	0.00	129.53	99.99	29.54	4.384				
6,037.10	6,027.65	6,028.17	6,026.95	21.08	21.10	-0.44	-30.48	0.01	129.52	99.80	29.73	4.357				
6,100.00	6,090.55	6,091.07	6,089.85	21.30	21.32	-0.44	-30.48	0.01	129.52	99.48	30.04	4.311				
6,200.00	6,190.55	6,191.07	6,189.85	21.65	21.68	-0.44	-30.48	0.01	129.52	98.98	30.55	4.240				
6,300.00	6,290.55	6,291.07	6,289.85	22.00	22.04	-0.44	-30.48	0.01	129.52	98.47	31.05	4.171				
6,400.00	6,390.55	6,391.07	6,389.85	22.36	22.40	-0.44	-30.48	0.01	129.52	97.97	31.56	4.105				
6,500.00	6,490.55	6,491.07	6,489.85	22.71	22.75	-0.44	-30.48	0.01	129.52	97.46	32.06	4.040				
6,600.00	6,590.55	6,591.07	6,589.85	23.06	23.11	-0.44	-30.48	0.01	129.52	96.96	32.56	3.978				
6,700.00	6,690.55	6,691.07	6,689.85	23.42	23.47	-0.44	-30.48	0.01	129.52	96.46	33.07	3.917				
6,800.00	6,790.55	6,791.07	6,789.85	23.77	23.82	-0.44	-30.48	0.01	129.52	95.95	33.57	3.858				
6,900.00	6,890.55	6,891.07	6,889.85	24.13	24.18	-0.44	-30.48	0.01	129.52	95.45	34.08	3.801				
7,000.00	6,990.55	6,991.07	6,989.85	24.48	24.54	-0.44	-30.48	0.01	129.52	94.94	34.58	3.746				
7,100.00	7,090.55	7,091.07	7,089.85	24.83	24.89	-0.44	-30.48	0.01	129.52	94.44	35.08	3.692				
7,200.00	7,190.55	7,191.07	7,189.85	25.19	25.25	-0.44	-30.48	0.01	129.52	93.93	35.59	3.639				
7,300.00	7,290.55	7,291.07	7,289.85	25.54	25.61	-0.44	-30.48	0.01	129.52	93.43	36.09	3.589				
7,400.00	7,390.55	7,391.07	7,389.85	25.90	25.97	-0.44	-30.48	0.01	129.52	92.93	36.60	3.539				
7,500.00	7,490.55	7,491.07	7,489.85	26.25	26.32	-0.44	-30.48	0.01	129.52	92.42	37.10	3.491				
7,600.00	7,590.55	7,591.07	7,589.85	26.61	26.68	-0.44	-30.48	0.01	129.52	91.92	37.61	3.444				
7,700.00	7,690.55	7,691.07	7,689.85	26.96	27.04	-0.44	-30.48	0.01	129.52	91.41	38.11	3.398				
7,800.00	7,790.55	7,791.07	7,789.85	27.32	27.39	-0.44	-30.48	0.01	129.52	90.91	38.62	3.354				
7,900.00	7,890.55	7,891.07	7,889.85	27.67	27.75	-0.44	-30.48	0.01	129.52	90.40	39.12	3.311				
8,000.00	7,990.55	7,991.07	7,989.85	28.03	28.11	-0.44	-30.48	0.01	129.52	89.90	39.63	3.269				
8,100.00	8,090.55	8,091.07	8,089.85	28.38	28.47	-0.44	-30.48	0.01	129.52	89.39	40.13	3.227				
8,117.49	8,108.04	8,108.56	8,107.34	28.44	28.53	-0.44	-30.48	0.01	129.52	89.30	40.22	3.220				
8,150.00	8,140.53	8,141.06	8,139.83	28.56	28.65	-179.88	-30.48	0.01	130.45	90.06	40.38	3.230				
8,200.00	8,190.27	8,190.79	8,189.57	28.73	28.82	-179.88	-30.48	0.01	135.45	94.83	40.63	3.334				
8,250.00	8,239.37	8,239.89	8,238.67	28.91	29.00	-179.89	-30.48	0.01	144.78	103.91	40.87	3.542				
8,300.00	8,287.48	8,288.00	8,286.78	29.09	29.17	-179.90	-30.48	0.01	158.35	117.24	41.11	3.852				
8,350.00	8,334.22	8,334.74	8,333.52	29.27	29.34	-179.90	-30.48	0.01	176.06	134.72	41.34	4.259				
8,400.00	8,379.24	8,379.76	8,378.54	29.46	29.50	-179.91	-30.48	0.01	197.77	156.21	41.56	4.759				
8,450.00	8,422.20	8,422.72	8,421.50	29.66	29.65	-179.92	-30.48	0.01	223.33	181.56	41.77	5.347				
8,500.00	8,462.76	8,463.28	8,462.06	29.86	29.80	-179.92	-30.48	0.01	252.53	210.57	41.96	6.018				
8,550.00	8,500.63	8,501.15	8,499.93	30.07	29.93	-179.93	-30.48	0.01	285.16	243.02	42.15	6.766				
8,600.00	8,535.51	8,536.03	8,534.81	30.28	30.06	-179.93	-30.48	0.01	320.97	278.66	42.31	7.586				
8,650.00	8,567.13	8,567.65	8,566.43	30.51	30.17	-179.93	-30.48	0.01	359.68	317.22	42.46	8.472				
8,700.00	8,595.26	8,595.78	8,594.56	30.75	30.27	-179.93	-30.48	0.01	400.99	358.41	42.58	9.416				
8,750.00	8,619.68	8,620.21	8,618.98	30.99	30.36	-179.92	-30.48	0.01	444.60	401.91	42.69	10.414				
8,800.00	8,640.21	8,640.73	8,639.51	31.25	30.43	-179.92	-30.48	0.01	490.18	447.39	42.78	11.457				
8,850.00	8,656.69	8,657.21	8,655.99	31.52	30.49	-179.90	-30.48	0.01	537.37	494.51	42.85	12.539				
8,900.00	8,668.99	8,669.52	8,668.29	31.80	30.54	-179.87	-30.48	0.01	585.81	542.91	42.91	13.653				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,950.00	8,677.03	8,677.55	8,676.33	32.09	30.56	-179.79	-30.48	0.01	635.15	592.21	42.94	14.792		
9,000.00	8,680.73	8,681.25	8,680.03	32.38	30.58	-179.26	-30.48	0.01	684.99	642.04	42.96	15.946		
9,017.49	8,681.00	8,681.52	8,680.30	32.49	30.58	-90.03	-30.48	0.01	702.48	659.52	42.96	16.352		
9,100.00	8,681.00	8,681.52	8,680.30	33.00	30.58	-90.04	-30.48	0.01	784.99	742.03	42.96	18.271		
9,200.00	8,681.00	8,681.52	8,680.30	33.70	30.58	-90.04	-30.48	0.01	884.99	842.02	42.97	20.595		
9,300.00	8,681.00	8,681.52	8,680.30	34.46	30.58	-90.05	-30.48	0.01	984.99	942.01	42.98	22.918		
9,400.00	8,681.00	8,681.52	8,680.30	35.28	30.58	-90.05	-30.48	0.01	1,084.99	1,042.00	42.99	25.240		
9,500.00	8,681.00	8,681.52	8,680.30	36.15	30.58	-90.06	-30.48	0.01	1,184.99	1,142.00	43.00	27.560		
9,600.00	8,681.00	8,681.52	8,680.30	37.08	30.58	-90.06	-30.48	0.01	1,284.99	1,241.99	43.01	29.879		
9,700.00	8,681.00	8,681.52	8,680.30	38.06	30.58	-90.07	-30.48	0.01	1,384.99	1,341.97	43.02	32.196		
9,800.00	8,681.00	8,681.52	8,680.30	39.08	30.58	-90.07	-30.48	0.01	1,484.99	1,441.96	43.03	34.512		
9,900.00	8,681.00	8,681.52	8,680.30	40.15	30.58	-90.08	-30.48	0.01	1,584.99	1,541.95	43.04	36.825		
10,000.00	8,681.00	8,681.52	8,680.30	41.25	30.58	-90.08	-30.48	0.01	1,684.99	1,641.94	43.05	39.137		
10,100.00	8,681.00	8,681.52	8,680.30	42.39	30.58	-90.09	-30.48	0.01	1,784.99	1,741.93	43.07	41.447		
10,200.00	8,681.00	8,681.52	8,680.30	43.56	30.58	-90.09	-30.48	0.01	1,884.99	1,841.91	43.08	43.755		
10,300.00	8,681.00	8,681.52	8,680.30	44.77	30.58	-90.10	-30.48	0.01	1,984.99	1,941.90	43.10	46.060		
10,400.00	8,681.00	12,560.30	10,720.00	46.00	51.05	-179.99	-2,115.37	20.23	2,039.70	2,006.23	33.47	60.937		
10,500.00	8,681.00	12,660.30	10,720.00	47.25	52.18	-179.99	-2,215.37	21.20	2,039.70	2,005.52	34.18	59.667		
10,600.00	8,681.00	12,760.30	10,720.00	48.53	53.34	-179.99	-2,315.36	22.17	2,039.70	2,004.78	34.92	58.413		
10,700.00	8,681.00	12,860.30	10,720.00	49.83	54.52	-179.99	-2,415.36	23.14	2,039.70	2,004.03	35.67	57.180		
10,800.00	8,681.00	12,960.30	10,720.00	51.16	55.72	-179.99	-2,515.35	24.10	2,039.70	2,003.26	36.44	55.970		
10,900.00	8,681.00	13,060.30	10,720.00	52.50	56.95	-179.99	-2,615.35	25.07	2,039.70	2,002.47	37.23	54.784		
11,000.00	8,681.00	13,160.30	10,720.00	53.86	58.20	-179.99	-2,715.35	26.04	2,039.70	2,001.66	38.04	53.626		
11,100.00	8,681.00	13,260.30	10,720.00	55.23	59.47	-179.99	-2,815.34	27.01	2,039.70	2,000.84	38.86	52.495		
11,200.00	8,681.00	13,360.30	10,720.00	56.62	60.75	-179.99	-2,915.34	27.98	2,039.70	2,000.01	39.69	51.392		
11,300.00	8,681.00	13,460.30	10,720.00	58.02	62.06	-179.99	-3,015.33	28.95	2,039.70	1,999.16	40.54	50.318		
11,400.00	8,681.00	13,560.30	10,720.00	59.44	63.38	-179.99	-3,115.33	29.92	2,039.70	1,998.30	41.40	49.274		
11,500.00	8,681.00	13,660.30	10,720.00	60.86	64.71	-179.99	-3,215.32	30.89	2,039.70	1,997.43	42.27	48.258		
11,600.00	8,681.00	13,760.30	10,720.00	62.30	66.06	-179.99	-3,315.32	31.86	2,039.70	1,996.55	43.15	47.272		
11,700.00	8,681.00	13,860.30	10,720.00	63.75	67.42	-179.99	-3,415.31	32.83	2,039.70	1,995.66	44.04	46.314		
11,800.00	8,681.00	13,960.30	10,720.00	65.21	68.80	-179.99	-3,515.31	33.80	2,039.70	1,994.76	44.94	45.385		
11,900.00	8,681.00	14,060.30	10,720.00	66.68	70.19	-180.00	-3,615.30	34.77	2,039.70	1,993.85	45.85	44.483		
12,000.00	8,681.00	14,160.30	10,720.00	68.15	71.58	-180.00	-3,715.30	35.74	2,039.70	1,992.93	46.77	43.608		
12,100.00	8,681.00	14,260.30	10,720.00	69.63	72.99	-180.00	-3,815.29	36.71	2,039.70	1,992.00	47.70	42.760		
12,200.00	8,681.00	14,360.30	10,720.00	71.13	74.41	-180.00	-3,915.29	37.68	2,039.70	1,991.06	48.64	41.938		
12,300.00	8,681.00	14,460.30	10,720.00	72.62	75.84	-180.00	-4,015.28	38.65	2,039.70	1,990.12	49.58	41.140		
12,400.00	8,681.00	14,560.30	10,720.00	74.13	77.28	-180.00	-4,115.28	39.62	2,039.70	1,989.17	50.53	40.367		
12,500.00	8,681.00	14,660.30	10,720.00	75.64	78.72	-180.00	-4,215.28	40.59	2,039.70	1,988.22	51.48	39.618		
12,600.00	8,681.00	14,760.30	10,720.00	77.15	80.18	-180.00	-4,315.27	41.56	2,039.70	1,987.25	52.45	38.891		
12,700.00	8,681.00	14,860.30	10,720.00	78.68	81.64	-180.00	-4,415.27	42.53	2,039.70	1,986.29	53.41	38.187		
12,800.00	8,681.00	14,960.30	10,720.00	80.20	83.11	-180.00	-4,515.26	43.50	2,039.70	1,985.31	54.39	37.504		
12,900.00	8,681.00	15,060.30	10,720.00	81.74	84.58	-180.00	-4,615.26	44.47	2,039.70	1,984.34	55.37	36.841		
13,000.00	8,681.00	15,160.30	10,720.00	83.27	86.06	-180.00	-4,715.25	45.44	2,039.70	1,983.35	56.35	36.198		
13,100.00	8,681.00	15,260.30	10,720.00	84.81	87.55	-180.00	-4,815.25	46.41	2,039.70	1,982.36	57.34	35.575		
13,200.00	8,681.00	15,360.30	10,720.00	86.36	89.05	-180.00	-4,915.24	47.38	2,039.70	1,981.37	58.33	34.970		
13,300.00	8,681.00	15,460.30	10,720.00	87.91	90.54	-180.00	-5,015.24	48.35	2,039.70	1,980.38	59.32	34.382		
13,400.00	8,681.00	15,560.30	10,720.00	89.46	92.05	-180.00	-5,115.23	49.31	2,039.70	1,979.38	60.32	33.812		
13,500.00	8,681.00	15,660.30	10,720.00	91.01	93.56	-180.00	-5,215.23	50.28	2,039.70	1,978.37	61.33	33.259		
13,600.00	8,681.00	15,760.30	10,720.00	92.57	95.07	-180.00	-5,315.22	51.25	2,039.70	1,977.36	62.34	32.721		
13,700.00	8,681.00	15,860.30	10,720.00	94.13	96.59	-180.00	-5,415.22	52.22	2,039.70	1,976.35	63.35	32.199		
13,800.00	8,681.00	15,960.30	10,720.00	95.70	98.11	-180.00	-5,515.21	53.19	2,039.70	1,975.34	64.36	31.691		
13,900.00	8,681.00	16,060.30	10,720.00	97.27	99.64	-180.00	-5,615.21	54.16	2,039.70	1,974.32	65.38	31.198		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 503H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,000.00	8,681.00	16,160.30	10,720.00	98.84	101.17	-180.00	-5,715.20	55.13	2,039.70	1,973.30	66.40	30.719				
14,100.00	8,681.00	16,260.30	10,720.00	100.41	102.70	-180.00	-5,815.20	56.10	2,039.70	1,972.28	67.42	30.253				
14,200.00	8,681.00	16,360.30	10,720.00	101.99	104.24	-180.00	-5,915.20	57.07	2,039.70	1,971.25	68.45	29.799				
14,300.00	8,681.00	16,460.30	10,720.00	103.57	105.78	-180.00	-6,015.19	58.04	2,039.70	1,970.22	69.48	29.358				
14,400.00	8,681.00	16,560.30	10,720.00	105.15	107.33	-180.00	-6,115.19	59.01	2,039.70	1,969.19	70.51	28.929				
14,500.00	8,681.00	16,660.30	10,720.00	106.73	108.88	-180.00	-6,215.18	59.98	2,039.70	1,968.16	71.54	28.511				
14,600.00	8,681.00	16,760.30	10,720.00	108.31	110.43	-180.00	-6,315.18	60.95	2,039.70	1,967.12	72.58	28.104				
14,700.00	8,681.00	16,860.30	10,720.00	109.90	111.98	-180.00	-6,415.17	61.92	2,039.70	1,966.09	73.61	27.708				
14,800.00	8,681.00	16,960.30	10,720.00	111.49	113.54	-180.00	-6,515.17	62.89	2,039.70	1,965.05	74.65	27.322				
14,900.00	8,681.00	17,060.30	10,720.00	113.08	115.10	-180.00	-6,615.16	63.86	2,039.70	1,964.00	75.70	26.946				
15,000.00	8,681.00	17,160.30	10,720.00	114.67	116.66	-180.00	-6,715.16	64.83	2,039.70	1,962.96	76.74	26.580				
15,100.00	8,681.00	17,260.30	10,720.00	116.27	118.22	-180.00	-6,815.15	65.80	2,039.70	1,961.92	77.78	26.222				
15,200.00	8,681.00	17,360.30	10,720.00	117.86	119.79	-180.00	-6,915.15	66.77	2,039.70	1,960.87	78.83	25.874				
15,300.00	8,681.00	17,460.30	10,720.00	119.46	121.36	-180.00	-7,015.14	67.74	2,039.70	1,959.82	79.88	25.534				
15,400.00	8,681.00	17,560.30	10,720.00	121.06	122.93	-180.00	-7,115.14	68.71	2,039.70	1,958.77	80.93	25.203				
15,500.00	8,681.00	17,660.30	10,720.00	122.66	124.50	-180.00	-7,215.13	69.68	2,039.70	1,957.72	81.98	24.879				
15,600.00	8,681.00	17,760.30	10,720.00	124.26	126.08	-180.00	-7,315.13	70.65	2,039.70	1,956.66	83.04	24.564				
15,700.00	8,681.00	17,860.30	10,720.00	125.86	127.65	-180.00	-7,415.12	71.62	2,039.70	1,955.61	84.09	24.255				
15,800.00	8,681.00	17,960.30	10,720.00	127.46	129.23	-180.00	-7,515.12	72.59	2,039.70	1,954.55	85.15	23.954				
15,900.00	8,681.00	18,060.30	10,720.00	129.07	130.81	-180.00	-7,615.12	73.55	2,039.70	1,953.49	86.21	23.660				
16,000.00	8,681.00	18,160.30	10,720.00	130.67	132.39	-180.00	-7,715.11	74.52	2,039.70	1,952.43	87.27	23.373				
16,100.00	8,681.00	18,260.30	10,720.00	132.28	133.98	-180.00	-7,815.11	75.49	2,039.70	1,951.37	88.33	23.093				
16,200.00	8,681.00	18,360.30	10,720.00	133.89	135.56	-180.00	-7,915.10	76.46	2,039.70	1,950.31	89.39	22.818				
16,300.00	8,681.00	18,460.30	10,720.00	135.50	137.15	-180.00	-8,015.10	77.43	2,039.70	1,949.25	90.45	22.550				
16,400.00	8,681.00	18,560.30	10,720.00	137.11	138.74	-180.00	-8,115.09	78.40	2,039.70	1,948.19	91.51	22.288				
16,500.00	8,681.00	18,660.30	10,720.00	138.72	140.33	-180.00	-8,215.09	79.37	2,039.70	1,947.12	92.58	22.032				
16,600.00	8,681.00	18,760.30	10,720.00	140.33	141.92	-180.00	-8,315.08	80.34	2,039.70	1,946.05	93.65	21.781				
16,700.00	8,681.00	18,860.30	10,720.00	141.95	143.51	-180.00	-8,415.08	81.31	2,039.70	1,944.99	94.71	21.536				
16,800.00	8,681.00	18,960.30	10,720.00	143.56	145.11	-180.00	-8,515.07	82.28	2,039.70	1,943.92	95.78	21.296				
16,900.00	8,681.00	19,060.30	10,720.00	145.17	146.70	-180.00	-8,615.07	83.25	2,039.70	1,942.85	96.85	21.060				
17,000.00	8,681.00	19,160.30	10,720.00	146.79	148.30	-180.00	-8,715.06	84.22	2,039.70	1,941.78	97.92	20.830				
17,100.00	8,681.00	19,260.30	10,720.00	148.41	149.90	-180.00	-8,815.06	85.19	2,039.70	1,940.71	98.99	20.605				
17,200.00	8,681.00	19,360.30	10,720.00	150.02	151.50	-180.00	-8,915.05	86.16	2,039.70	1,939.64	100.06	20.384				
17,300.00	8,681.00	19,460.30	10,720.00	151.64	153.10	-180.00	-9,015.05	87.13	2,039.70	1,938.57	101.13	20.168				
17,400.00	8,681.00	19,560.30	10,720.00	153.26	154.70	-180.00	-9,115.04	88.10	2,039.70	1,937.49	102.21	19.957				
17,500.00	8,681.00	19,660.30	10,720.00	154.88	156.30	-180.00	-9,215.04	89.07	2,039.70	1,936.42	103.28	19.749				
17,600.00	8,681.00	19,760.30	10,720.00	156.50	157.90	-180.00	-9,315.04	90.04	2,039.70	1,935.34	104.36	19.546				
17,700.00	8,681.00	19,860.30	10,720.00	158.12	159.51	-180.00	-9,415.03	91.01	2,039.70	1,934.27	105.43	19.346				
17,800.00	8,681.00	19,960.30	10,720.00	159.74	161.11	-180.00	-9,515.03	91.98	2,039.70	1,933.19	106.51	19.151				
17,900.00	8,681.00	20,060.30	10,720.00	161.36	162.72	-180.00	-9,615.02	92.95	2,039.70	1,932.12	107.58	18.959				
18,000.00	8,681.00	20,160.30	10,720.00	162.99	164.33	-180.00	-9,715.02	93.92	2,039.70	1,931.04	108.66	18.771				
18,100.00	8,681.00	20,260.30	10,720.00	164.61	165.93	-180.00	-9,815.01	94.89	2,039.70	1,929.96	109.74	18.587				
18,200.00	8,681.00	20,360.30	10,720.00	166.23	167.54	-180.00	-9,915.01	95.86	2,039.70	1,928.88	110.82	18.406				
18,300.00	8,681.00	20,460.30	10,720.00	167.86	169.15	-180.00	-10,015.00	96.83	2,039.70	1,927.80	111.90	18.228				
18,400.00	8,681.00	20,560.30	10,720.00	169.48	170.76	-180.00	-10,115.00	97.80	2,039.70	1,926.72	112.98	18.054				
18,500.00	8,681.00	20,660.30	10,720.00	171.11	172.37	-180.00	-10,214.99	98.76	2,039.70	1,925.64	114.06	17.883				
18,600.00	8,681.00	20,760.30	10,720.00	172.73	173.99	-180.00	-10,314.99	99.73	2,039.70	1,924.56	115.14	17.715				
18,681.03	8,681.00	20,841.32	10,720.00	174.05	175.22	-180.00	-10,396.01	100.52	2,039.70	1,923.80	115.90	17.598				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 504H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
0.00	0.00	0.00	0.00	0.00	0.00	-90.55	-0.24	-24.99	25.01							
100.00	100.00	99.00	99.00	0.13	0.12	-90.55	-0.24	-24.99	24.99	24.81	0.18	141.553				
200.00	200.00	199.00	199.00	0.48	0.48	-90.55	-0.24	-24.99	24.99	24.31	0.68	36.651				
300.00	300.00	299.00	299.00	0.84	0.84	-90.55	-0.24	-24.99	24.99	23.80	1.19	21.022				
400.00	400.00	399.00	399.00	1.20	1.20	-90.55	-0.24	-24.99	24.99	23.30	1.70	14.737				
500.00	500.00	499.00	499.00	1.56	1.56	-90.55	-0.24	-24.99	24.99	22.79	2.20	11.346				
600.00	600.00	599.00	599.00	1.92	1.91	-90.55	-0.24	-24.99	24.99	22.28	2.71	9.223				
700.00	700.00	699.00	699.00	2.28	2.27	-90.55	-0.24	-24.99	24.99	21.77	3.22	7.769				
800.00	800.00	799.00	799.00	2.63	2.63	-90.55	-0.24	-24.99	24.99	21.27	3.72	6.712				
900.00	900.00	899.00	899.00	2.99	2.99	-90.55	-0.24	-24.99	24.99	20.76	4.23	5.907				
1,000.00	1,000.00	999.00	999.00	3.35	3.35	-90.55	-0.24	-24.99	24.99	20.25	4.74	5.275				
1,100.00	1,100.00	1,099.00	1,099.00	3.71	3.71	-90.55	-0.24	-24.99	24.99	19.75	5.24	4.765				
1,200.00	1,200.00	1,199.00	1,199.00	4.07	4.07	-90.55	-0.24	-24.99	24.99	19.24	5.75	4.345				
1,300.00	1,300.00	1,299.00	1,299.00	4.43	4.42	-90.55	-0.24	-24.99	24.99	18.73	6.26	3.993				
1,400.00	1,400.00	1,399.00	1,399.00	4.79	4.78	-90.55	-0.24	-24.99	24.99	18.23	6.77	3.694				
1,500.00	1,500.00	1,499.00	1,499.00	5.14	5.14	-90.55	-0.24	-24.99	24.99	17.72	7.27	3.436				
1,600.00	1,600.00	1,599.00	1,599.00	5.50	5.50	-90.55	-0.24	-24.99	24.99	17.21	7.78	3.213				
1,700.00	1,700.00	1,699.00	1,699.00	5.86	5.86	-90.55	-0.24	-24.99	24.99	16.70	8.29	3.016				
1,800.00	1,800.00	1,799.00	1,799.00	6.22	6.22	-90.55	-0.24	-24.99	24.99	16.20	8.79	2.842				
1,900.00	1,900.00	1,899.00	1,899.00	6.58	6.57	-90.55	-0.24	-24.99	24.99	15.69	9.30	2.687				
2,000.00	2,000.00	1,999.00	1,999.00	6.94	6.93	-90.55	-0.24	-24.99	24.99	15.18	9.81	2.548				
2,100.00	2,100.00	2,099.00	2,099.00	7.29	7.29	-90.55	-0.24	-24.99	24.99	14.68	10.31	2.423				
2,200.00	2,200.00	2,199.00	2,199.00	7.65	7.65	-90.55	-0.24	-24.99	24.99	14.17	10.82	2.310				
2,300.00	2,300.00	2,299.00	2,299.00	8.01	8.01	-90.55	-0.24	-24.99	24.99	13.66	11.33	2.206				
2,400.00	2,400.00	2,399.00	2,399.00	8.37	8.37	-90.55	-0.24	-24.99	24.99	13.16	11.83	2.112				
2,500.00	2,500.00	2,499.00	2,499.00	8.73	8.73	-90.55	-0.24	-24.99	24.99	12.65	12.34	2.025				
2,600.00	2,600.00	2,599.00	2,599.00	9.09	9.08	-90.55	-0.24	-24.99	24.99	12.14	12.85	1.945				
2,700.00	2,700.00	2,699.00	2,699.00	9.45	9.44	-90.55	-0.24	-24.99	24.99	11.64	13.36	1.871				
2,800.00	2,800.00	2,799.00	2,799.00	9.80	9.80	-90.55	-0.24	-24.99	24.99	11.13	13.86	1.803				
2,900.00	2,900.00	2,899.00	2,899.00	10.16	10.16	-90.55	-0.24	-24.99	24.99	10.62	14.37	1.739				
3,000.00	3,000.00	2,999.00	2,999.00	10.52	10.52	-90.55	-0.24	-24.99	24.99	10.11	14.88	1.680				
3,025.31	3,025.31	3,024.31	3,024.31	10.61	10.61	90.00	-0.24	-24.99	24.99	9.99	15.00	1.666 CC				
3,100.00	3,099.99	3,098.99	3,098.99	10.86	10.88	92.81	-0.24	-24.99	25.02	9.65	15.37	1.628 ES				
3,200.00	3,199.91	3,198.91	3,198.91	11.18	11.23	101.63	-0.24	-24.99	25.52	9.66	15.85	1.610 SF				
3,300.00	3,299.69	3,298.69	3,298.69	11.51	11.59	115.00	-0.24	-24.99	27.59	11.26	16.33	1.689				
3,400.00	3,399.27	3,399.20	3,399.18	11.84	11.94	131.42	-0.50	-23.29	31.09	14.29	16.80	1.850				
3,500.00	3,498.57	3,499.33	3,499.17	12.17	12.28	150.00	-1.30	-18.14	36.38	19.12	17.26	2.107				
3,533.06	3,531.33	3,532.30	3,532.05	12.28	12.40	156.12	-1.67	-15.69	38.91	21.48	17.42	2.233				
3,600.00	3,597.62	3,598.89	3,598.34	12.50	12.62	167.60	-2.61	-9.59	44.97	27.22	17.75	2.534				
3,700.00	3,696.65	3,697.86	3,696.58	12.85	12.97	-177.69	-4.44	2.27	55.95	37.72	18.23	3.068				
3,800.00	3,795.68	3,796.03	3,793.56	13.19	13.31	-165.43	-6.77	17.35	69.59	50.87	18.71	3.719				
3,900.00	3,894.70	3,893.20	3,888.97	13.54	13.66	-155.28	-9.57	35.49	86.16	66.99	19.17	4.495				
4,000.00	3,993.73	3,989.14	3,982.52	13.90	14.02	-146.91	-12.81	56.54	105.82	86.23	19.59	5.401				
4,100.00	4,092.76	4,083.69	4,073.95	14.26	14.38	-140.01	-16.47	80.29	128.66	108.67	19.99	6.436				
4,149.39	4,141.67	4,130.70	4,119.17	14.44	14.57	-137.06	-18.44	93.03	140.99	120.80	20.20	6.981				
4,200.00	4,191.83	4,179.23	4,165.83	14.62	14.76	-134.55	-20.47	106.20	153.74	133.32	20.42	7.528				
4,300.00	4,291.19	4,275.26	4,258.16	14.98	15.16	-130.23	-24.49	132.27	178.42	157.55	20.87	8.548				
4,400.00	4,390.81	4,371.42	4,350.63	15.34	15.56	-126.45	-28.52	158.38	202.42	181.09	21.33	9.490				
4,500.00	4,490.62	4,467.66	4,443.16	15.69	15.98	-122.98	-32.54	184.50	225.82	204.03	21.79	10.365				
4,600.00	4,590.56	4,563.90	4,535.70	16.04	16.40	-119.70	-36.57	210.63	248.72	226.48	22.24	11.182				
4,682.45	4,673.00	4,643.21	4,611.96	16.32	16.75	62.54	-39.89	232.16	267.33	244.71	22.62	11.819				
4,700.00	4,690.55	4,660.09	4,628.19	16.38	16.83	63.14	-40.60	236.75	271.29	248.59	22.70	11.951				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,800.00	4,790.55	4,756.24	4,720.64	16.73	17.27	66.22	-44.62	262.85	294.32	271.16	23.16	12.707		
4,900.00	4,890.55	4,852.40	4,813.10	17.08	17.71	68.86	-48.65	288.95	318.06	294.43	23.63	13.460		
5,000.00	4,990.55	4,948.55	4,905.55	17.43	18.16	71.13	-52.68	315.06	342.36	318.25	24.10	14.204		
5,100.00	5,090.55	5,044.70	4,998.00	17.78	18.62	73.11	-56.70	341.16	367.10	342.52	24.58	14.936		
5,200.00	5,190.55	5,140.86	5,090.46	18.13	19.08	74.83	-60.73	367.27	392.21	367.15	25.06	15.652		
5,300.00	5,290.55	5,237.01	5,182.91	18.48	19.55	76.36	-64.75	393.37	417.61	392.07	25.54	16.351		
5,400.00	5,390.55	5,333.16	5,275.37	18.83	20.03	77.70	-68.78	419.47	443.26	417.23	26.03	17.031		
5,500.00	5,490.55	5,429.32	5,367.82	19.19	20.50	78.90	-72.80	445.58	469.12	442.60	26.51	17.693		
5,600.00	5,590.55	5,525.47	5,460.28	19.54	20.98	79.98	-76.83	471.68	495.15	468.15	27.00	18.337		
5,700.00	5,690.55	5,621.62	5,552.73	19.89	21.47	80.95	-80.85	497.79	521.33	493.83	27.49	18.961		
5,800.00	5,790.55	5,717.77	5,645.19	20.24	21.96	81.82	-84.88	523.89	547.63	519.64	27.99	19.567		
5,900.00	5,890.55	5,813.93	5,737.64	20.59	22.45	82.62	-88.90	550.00	574.04	545.56	28.48	20.154		
6,000.00	5,990.55	5,910.08	5,830.09	20.95	22.94	83.35	-92.93	576.10	600.55	571.57	28.98	20.724		
6,100.00	6,090.55	6,006.23	5,922.55	21.30	23.44	84.01	-96.95	602.20	627.14	597.67	29.48	21.276		
6,200.00	6,190.55	6,102.39	6,015.00	21.65	23.94	84.63	-100.98	628.31	653.81	623.83	29.97	21.812		
6,300.00	6,290.55	6,198.54	6,107.46	22.00	24.45	85.19	-105.00	654.41	680.54	650.06	30.47	22.331		
6,400.00	6,390.55	6,294.69	6,199.91	22.36	24.95	85.71	-109.03	680.52	707.32	676.35	30.98	22.835		
6,500.00	6,490.55	6,390.85	6,292.37	22.71	25.46	86.19	-113.05	706.62	734.16	702.68	31.48	23.323		
6,600.00	6,590.55	6,487.00	6,384.82	23.06	25.97	86.64	-117.08	732.72	761.04	729.06	31.98	23.797		
6,700.00	6,690.55	6,583.15	6,477.27	23.42	26.48	87.06	-121.10	758.83	787.96	755.47	32.48	24.257		
6,800.00	6,790.55	6,679.31	6,569.73	23.77	27.00	87.45	-125.13	784.93	814.92	781.93	32.99	24.704		
6,900.00	6,890.55	6,775.46	6,662.18	24.13	27.51	87.82	-129.15	811.04	841.91	808.41	33.49	25.137		
7,000.00	6,990.55	6,871.61	6,754.64	24.48	28.03	88.16	-133.18	837.14	868.93	834.93	34.00	25.558		
7,100.00	7,090.55	6,967.77	6,847.09	24.83	28.55	88.49	-137.21	863.24	895.98	861.47	34.51	25.966		
7,200.00	7,190.55	7,063.92	6,939.55	25.19	29.07	88.79	-141.23	889.35	923.05	888.04	35.01	26.363		
7,300.00	7,290.55	7,160.07	7,032.00	25.54	29.59	89.08	-145.26	915.45	950.14	914.62	35.52	26.748		
7,400.00	7,390.55	7,256.23	7,124.45	25.90	30.12	89.35	-149.28	941.56	977.26	941.23	36.03	27.123		
7,500.00	7,490.55	7,352.38	7,216.91	26.25	30.64	89.60	-153.31	967.66	1,004.40	967.86	36.54	27.488		
7,600.00	7,590.55	7,448.53	7,309.36	26.61	31.17	89.85	-157.33	993.77	1,031.55	994.50	37.05	27.842		
7,700.00	7,690.55	7,544.69	7,401.82	26.96	31.70	90.08	-161.36	1,019.87	1,058.72	1,021.16	37.56	28.187		
7,800.00	7,790.55	7,640.84	7,494.27	27.32	32.23	90.30	-165.38	1,045.97	1,085.90	1,047.83	38.07	28.523		
7,900.00	7,890.55	7,736.99	7,586.73	27.67	32.76	90.50	-169.41	1,072.08	1,113.10	1,074.52	38.58	28.850		
8,000.00	7,990.55	7,833.15	7,679.18	28.03	33.29	90.70	-173.43	1,098.18	1,140.31	1,101.22	39.09	29.169		
8,100.00	8,090.55	7,929.30	7,771.64	28.38	33.82	90.89	-177.46	1,124.29	1,167.54	1,127.93	39.61	29.479		
8,117.49	8,108.04	7,946.11	7,787.80	28.44	33.91	90.92	-178.16	1,128.85	1,172.30	1,132.61	39.70	29.532		
8,150.00	8,140.53	7,977.40	7,817.89	28.56	34.08	-87.59	-179.47	1,137.34	1,181.13	1,141.26	39.86	29.630		
8,200.00	8,190.27	8,025.44	7,864.08	28.73	34.35	-86.36	-181.48	1,150.39	1,194.55	1,154.43	40.12	29.774		
8,250.00	8,239.37	8,073.07	7,909.88	28.91	34.61	-85.36	-183.48	1,163.32	1,207.73	1,167.34	40.39	29.904		
8,300.00	8,287.48	8,119.93	7,954.94	29.09	34.87	-84.58	-185.44	1,176.04	1,220.65	1,179.99	40.66	30.022		
8,350.00	8,334.22	8,165.67	7,998.91	29.27	35.13	-83.99	-187.35	1,188.46	1,233.33	1,192.40	40.94	30.127		
8,400.00	8,379.24	8,209.92	8,041.46	29.46	35.37	-83.56	-189.21	1,200.47	1,245.83	1,204.60	41.22	30.222		
8,450.00	8,422.20	8,252.36	8,082.27	29.66	35.61	-83.26	-190.98	1,211.99	1,258.22	1,216.70	41.51	30.308		
8,500.00	8,462.76	8,292.67	8,121.03	29.86	35.83	-83.03	-192.67	1,222.94	1,270.62	1,228.80	41.81	30.388		
8,550.00	8,500.63	8,330.53	8,157.43	30.07	36.05	-82.84	-194.25	1,233.21	1,283.14	1,241.02	42.12	30.464		
8,600.00	8,535.51	8,365.66	8,191.21	30.28	36.24	-82.63	-195.72	1,242.75	1,295.93	1,253.49	42.44	30.538		
8,650.00	8,567.13	8,397.79	8,222.10	30.51	36.42	-82.37	-197.07	1,251.47	1,309.09	1,266.33	42.76	30.616		
8,700.00	8,595.26	8,426.67	8,249.88	30.75	36.58	-82.01	-198.28	1,259.32	1,322.76	1,279.67	43.09	30.698		
8,750.00	8,619.68	8,452.10	8,274.32	30.99	36.72	-81.50	-199.34	1,266.22	1,337.03	1,293.60	43.42	30.790		
8,800.00	8,640.21	8,473.86	8,295.25	31.25	36.84	-80.82	-200.25	1,272.13	1,351.97	1,308.20	43.76	30.893		
8,850.00	8,656.69	8,491.81	8,312.51	31.52	36.94	-79.93	-201.01	1,277.00	1,367.63	1,323.52	44.10	31.010		
8,900.00	8,668.99	8,505.79	8,325.96	31.80	37.02	-78.82	-201.59	1,280.80	1,384.01	1,339.57	44.44	31.144		
8,950.00	8,677.03	8,515.71	8,335.49	32.09	37.08	-77.46	-202.01	1,283.49	1,401.10	1,356.33	44.77	31.297		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,000.00	8,680.73	8,521.49	8,341.05	32.38	37.11	-75.87	-202.25	1,285.06	1,418.82	1,373.73	45.08	31.470		
9,017.49	8,681.00	8,522.53	8,342.05	32.49	37.12	-75.25	-202.29	1,285.34	1,425.15	1,379.95	45.19	31.536		
9,100.00	8,681.00	8,526.20	8,345.58	33.00	37.14	-75.41	-202.45	1,286.34	1,457.17	1,411.47	45.70	31.889		
9,200.00	8,681.00	8,530.65	8,349.85	33.70	37.16	-75.60	-202.63	1,287.54	1,501.14	1,454.84	46.30	32.422		
9,300.00	8,681.00	8,535.10	8,354.13	34.46	37.19	-75.79	-202.82	1,288.75	1,550.32	1,503.43	46.89	33.065		
9,400.00	8,681.00	8,539.55	8,358.41	35.28	37.21	-75.99	-203.00	1,289.96	1,604.21	1,556.77	47.44	33.814		
9,500.00	8,681.00	8,544.00	8,362.69	36.15	37.24	-76.18	-203.19	1,291.17	1,662.36	1,614.40	47.96	34.658		
9,600.00	8,681.00	8,548.45	8,366.97	37.08	37.26	-76.37	-203.38	1,292.38	1,724.35	1,675.90	48.45	35.592		
9,700.00	8,681.00	8,552.90	8,371.25	38.06	37.29	-76.56	-203.56	1,293.58	1,789.77	1,740.87	48.89	36.606		
9,800.00	8,681.00	8,557.35	8,375.53	39.08	37.31	-76.75	-203.75	1,294.79	1,858.26	1,808.96	49.30	37.693		
9,900.00	8,681.00	8,561.80	8,379.81	40.15	37.34	-76.94	-203.94	1,296.00	1,929.49	1,879.82	49.67	38.848		
10,000.00	8,681.00	8,566.25	8,384.09	41.25	37.36	-77.14	-204.12	1,297.21	2,003.17	1,953.17	50.00	40.061		
10,100.00	8,681.00	8,570.70	8,388.36	42.39	37.39	-77.33	-204.31	1,298.42	2,079.04	2,028.74	50.31	41.327		
10,200.00	8,681.00	8,575.15	8,392.64	43.56	37.41	-77.52	-204.49	1,299.63	2,156.88	2,106.29	50.58	42.641		
10,300.00	8,681.00	8,579.60	8,396.92	44.77	37.44	-77.71	-204.68	1,300.83	2,236.46	2,185.63	50.83	43.996		
10,400.00	8,681.00	8,584.05	8,401.20	46.00	37.46	-77.90	-204.87	1,302.04	2,317.62	2,266.56	51.06	45.389		
10,500.00	8,681.00	8,588.50	8,405.48	47.25	37.48	-78.09	-205.05	1,303.25	2,400.20	2,348.93	51.27	46.815		
10,600.00	8,681.00	8,592.95	8,409.76	48.53	37.51	-78.28	-205.24	1,304.46	2,484.04	2,432.58	51.46	48.270		
10,700.00	8,681.00	12,835.39	10,710.00	49.83	59.56	-143.59	-2,400.87	1,519.98	2,522.35	2,472.72	49.64	50.816		
10,800.00	8,681.00	12,935.39	10,710.00	51.16	60.64	-143.59	-2,500.86	1,520.94	2,522.35	2,471.52	50.83	49.623		
10,900.00	8,681.00	13,035.39	10,710.00	52.50	61.76	-143.59	-2,600.86	1,521.91	2,522.35	2,470.30	52.05	48.462		
11,000.00	8,681.00	13,135.39	10,710.00	53.86	62.89	-143.59	-2,700.85	1,522.88	2,522.35	2,469.06	53.29	47.334		
11,100.00	8,681.00	13,235.39	10,710.00	55.23	64.05	-143.59	-2,800.85	1,523.85	2,522.34	2,467.79	54.55	46.240		
11,200.00	8,681.00	13,335.39	10,710.00	56.62	65.23	-143.59	-2,900.85	1,524.82	2,522.34	2,466.51	55.83	45.180		
11,300.00	8,681.00	13,435.39	10,710.00	58.02	66.44	-143.59	-3,000.84	1,525.78	2,522.34	2,465.21	57.12	44.155		
11,400.00	8,681.00	13,535.39	10,710.00	59.44	67.66	-143.59	-3,100.84	1,526.75	2,522.34	2,463.90	58.44	43.164		
11,500.00	8,681.00	13,635.39	10,710.00	60.86	68.90	-143.59	-3,200.83	1,527.72	2,522.33	2,462.57	59.76	42.205		
11,600.00	8,681.00	13,735.39	10,710.00	62.30	70.16	-143.59	-3,300.83	1,528.69	2,522.33	2,461.23	61.10	41.279		
11,700.00	8,681.00	13,835.39	10,710.00	63.75	71.43	-143.59	-3,400.82	1,529.66	2,522.33	2,459.87	62.46	40.385		
11,800.00	8,681.00	13,935.39	10,710.00	65.21	72.72	-143.59	-3,500.82	1,530.62	2,522.33	2,458.50	63.82	39.520		
11,900.00	8,681.00	14,035.39	10,710.00	66.68	74.02	-143.59	-3,600.81	1,531.59	2,522.32	2,457.12	65.20	38.685		
12,000.00	8,681.00	14,135.39	10,710.00	68.15	75.34	-143.59	-3,700.81	1,532.56	2,522.32	2,455.73	66.59	37.878		
12,100.00	8,681.00	14,235.39	10,710.00	69.63	76.67	-143.59	-3,800.80	1,533.53	2,522.32	2,454.33	67.99	37.098		
12,200.00	8,681.00	14,335.39	10,710.00	71.13	78.02	-143.59	-3,900.80	1,534.50	2,522.32	2,452.92	69.40	36.344		
12,300.00	8,681.00	14,435.39	10,710.00	72.62	79.37	-143.59	-4,000.79	1,535.46	2,522.31	2,451.50	70.82	35.618		
12,400.00	8,681.00	14,535.39	10,710.00	74.13	80.74	-143.59	-4,100.79	1,536.43	2,522.31	2,450.07	72.24	34.915		
12,500.00	8,681.00	14,635.39	10,710.00	75.64	82.12	-143.59	-4,200.78	1,537.40	2,522.31	2,448.63	73.68	34.236		
12,600.00	8,681.00	14,735.39	10,710.00	77.15	83.51	-143.59	-4,300.78	1,538.37	2,522.31	2,447.19	75.11	33.579		
12,700.00	8,681.00	14,835.39	10,710.00	78.68	84.90	-143.59	-4,400.77	1,539.34	2,522.30	2,445.74	76.56	32.945		
12,800.00	8,681.00	14,935.39	10,710.00	80.20	86.31	-143.59	-4,500.77	1,540.31	2,522.30	2,444.29	78.01	32.332		
12,900.00	8,681.00	15,035.39	10,710.00	81.74	87.73	-143.59	-4,600.77	1,541.27	2,522.30	2,442.83	79.47	31.738		
13,000.00	8,681.00	15,135.39	10,710.00	83.27	89.15	-143.59	-4,700.76	1,542.24	2,522.30	2,441.36	80.94	31.164		
13,100.00	8,681.00	15,235.39	10,710.00	84.81	90.58	-143.59	-4,800.76	1,543.21	2,522.29	2,439.89	82.41	30.607		
13,200.00	8,681.00	15,335.39	10,710.00	86.36	92.02	-143.59	-4,900.75	1,544.18	2,522.29	2,438.41	83.88	30.069		
13,300.00	8,681.00	15,435.39	10,710.00	87.91	93.47	-143.59	-5,000.75	1,545.15	2,522.29	2,436.93	85.36	29.548		
13,400.00	8,681.00	15,535.39	10,710.00	89.46	94.92	-143.59	-5,100.74	1,546.11	2,522.29	2,435.44	86.85	29.043		
13,500.00	8,681.00	15,635.39	10,710.00	91.01	96.38	-143.59	-5,200.74	1,547.08	2,522.28	2,433.95	88.34	28.553		
13,600.00	8,681.00	15,735.39	10,710.00	92.57	97.84	-143.59	-5,300.73	1,548.05	2,522.28	2,432.45	89.83	28.079		
13,700.00	8,681.00	15,835.39	10,710.00	94.13	99.32	-143.59	-5,400.73	1,549.02	2,522.28	2,430.96	91.32	27.620		
13,800.00	8,681.00	15,935.39	10,710.00	95.70	100.79	-143.59	-5,500.72	1,549.99	2,522.28	2,429.46	92.82	27.174		
13,900.00	8,681.00	16,035.39	10,710.00	97.27	102.27	-143.59	-5,600.72	1,550.95	2,522.27	2,427.95	94.32	26.741		
14,000.00	8,681.00	16,135.39	10,710.00	98.84	103.76	-143.59	-5,700.71	1,551.92	2,522.27	2,426.44	95.83	26.320		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 504H - OH - Plan #1		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
14,100.00	8,681.00	16,235.39	10,710.00	100.41	105.25	-143.59	-5,800.71	1,552.89	2,522.27	2,424.93	97.34	25.912				
14,200.00	8,681.00	16,335.39	10,710.00	101.99	106.75	-143.59	-5,900.70	1,553.86	2,522.27	2,423.42	98.85	25.516				
14,300.00	8,681.00	16,435.39	10,710.00	103.57	108.25	-143.59	-6,000.70	1,554.83	2,522.26	2,421.90	100.36	25.132				
14,400.00	8,681.00	16,535.39	10,710.00	105.15	109.76	-143.59	-6,100.70	1,555.79	2,522.26	2,420.38	101.88	24.757				
14,500.00	8,681.00	16,635.39	10,710.00	106.73	111.27	-143.59	-6,200.69	1,556.76	2,522.26	2,418.86	103.40	24.393				
14,600.00	8,681.00	16,735.39	10,710.00	108.31	112.78	-143.59	-6,300.69	1,557.73	2,522.26	2,417.34	104.92	24.040				
14,700.00	8,681.00	16,835.39	10,710.00	109.90	114.30	-143.59	-6,400.68	1,558.70	2,522.25	2,415.81	106.44	23.696				
14,800.00	8,681.00	16,935.39	10,710.00	111.49	115.82	-143.59	-6,500.68	1,559.67	2,522.25	2,414.29	107.97	23.361				
14,900.00	8,681.00	17,035.39	10,710.00	113.08	117.35	-143.59	-6,600.67	1,560.63	2,522.25	2,412.76	109.49	23.036				
15,000.00	8,681.00	17,135.39	10,710.00	114.67	118.88	-143.59	-6,700.67	1,561.60	2,522.25	2,411.22	111.02	22.718				
15,100.00	8,681.00	17,235.39	10,710.00	116.27	120.41	-143.59	-6,800.66	1,562.57	2,522.24	2,409.69	112.55	22.409				
15,200.00	8,681.00	17,335.39	10,710.00	117.86	121.94	-143.59	-6,900.66	1,563.54	2,522.24	2,408.16	114.08	22.109				
15,300.00	8,681.00	17,435.39	10,710.00	119.46	123.48	-143.59	-7,000.65	1,564.51	2,522.24	2,406.62	115.62	21.815				
15,400.00	8,681.00	17,535.39	10,710.00	121.06	125.02	-143.59	-7,100.65	1,565.48	2,522.24	2,405.08	117.15	21.529				
15,500.00	8,681.00	17,635.39	10,710.00	122.66	126.57	-143.59	-7,200.64	1,566.44	2,522.23	2,403.55	118.69	21.251				
15,600.00	8,681.00	17,735.39	10,710.00	124.26	128.11	-143.60	-7,300.64	1,567.41	2,522.23	2,402.01	120.22	20.979				
15,700.00	8,681.00	17,835.39	10,710.00	125.86	129.66	-143.60	-7,400.63	1,568.38	2,522.23	2,400.47	121.76	20.714				
15,800.00	8,681.00	17,935.39	10,710.00	127.46	131.21	-143.60	-7,500.63	1,569.35	2,522.23	2,398.93	123.30	20.456				
15,900.00	8,681.00	18,035.39	10,710.00	129.07	132.77	-143.60	-7,600.62	1,570.32	2,522.22	2,397.38	124.84	20.203				
16,000.00	8,681.00	18,135.39	10,710.00	130.67	134.33	-143.60	-7,700.62	1,571.28	2,522.22	2,395.84	126.39	19.956				
16,100.00	8,681.00	18,235.39	10,710.00	132.28	135.88	-143.60	-7,800.62	1,572.25	2,522.22	2,394.29	127.93	19.716				
16,200.00	8,681.00	18,335.39	10,710.00	133.89	137.44	-143.60	-7,900.61	1,573.22	2,522.22	2,392.75	129.47	19.481				
16,300.00	8,681.00	18,435.39	10,710.00	135.50	139.01	-143.60	-8,000.61	1,574.19	2,522.22	2,391.20	131.01	19.251				
16,400.00	8,681.00	18,535.39	10,710.00	137.11	140.57	-143.60	-8,100.60	1,575.16	2,522.21	2,389.65	132.56	19.027				
16,500.00	8,681.00	18,635.39	10,710.00	138.72	142.14	-143.60	-8,200.60	1,576.12	2,522.21	2,388.11	134.10	18.808				
16,600.00	8,681.00	18,735.39	10,710.00	140.33	143.71	-143.60	-8,300.59	1,577.09	2,522.21	2,386.56	135.65	18.593				
16,700.00	8,681.00	18,835.39	10,710.00	141.95	145.28	-143.60	-8,400.59	1,578.06	2,522.21	2,385.01	137.20	18.384				
16,800.00	8,681.00	18,935.39	10,710.00	143.56	146.85	-143.60	-8,500.58	1,579.03	2,522.20	2,383.46	138.74	18.179				
16,900.00	8,681.00	19,035.39	10,710.00	145.17	148.43	-143.60	-8,600.58	1,580.00	2,522.20	2,381.91	140.29	17.978				
17,000.00	8,681.00	19,135.39	10,710.00	146.79	150.00	-143.60	-8,700.57	1,580.96	2,522.20	2,380.36	141.84	17.782				
17,100.00	8,681.00	19,235.39	10,710.00	148.41	151.58	-143.60	-8,800.57	1,581.93	2,522.20	2,378.81	143.39	17.590				
17,200.00	8,681.00	19,335.39	10,710.00	150.02	153.16	-143.60	-8,900.56	1,582.90	2,522.19	2,377.25	144.94	17.402				
17,300.00	8,681.00	19,435.39	10,710.00	151.64	154.74	-143.60	-9,000.56	1,583.87	2,522.19	2,375.70	146.49	17.217				
17,400.00	8,681.00	19,535.39	10,710.00	153.26	156.32	-143.60	-9,100.55	1,584.84	2,522.19	2,374.15	148.04	17.037				
17,500.00	8,681.00	19,635.39	10,710.00	154.88	157.90	-143.60	-9,200.55	1,585.80	2,522.19	2,372.60	149.59	16.861				
17,600.00	8,681.00	19,735.39	10,710.00	156.50	159.49	-143.60	-9,300.55	1,586.77	2,522.18	2,371.04	151.14	16.688				
17,700.00	8,681.00	19,835.39	10,710.00	158.12	161.08	-143.60	-9,400.54	1,587.74	2,522.18	2,369.49	152.69	16.518				
17,800.00	8,681.00	19,935.39	10,710.00	159.74	162.66	-143.60	-9,500.54	1,588.71	2,522.18	2,367.93	154.24	16.352				
17,900.00	8,681.00	20,035.39	10,710.00	161.36	164.25	-143.60	-9,600.53	1,589.68	2,522.18	2,366.38	155.80	16.189				
18,000.00	8,681.00	20,135.39	10,710.00	162.99	165.84	-143.60	-9,700.53	1,590.64	2,522.17	2,364.83	157.35	16.030				
18,100.00	8,681.00	20,235.39	10,710.00	164.61	167.43	-143.60	-9,800.52	1,591.61	2,522.17	2,363.27	158.90	15.873				
18,200.00	8,681.00	20,335.39	10,710.00	166.23	169.03	-143.60	-9,900.52	1,592.58	2,522.17	2,361.72	160.45	15.719				
18,300.00	8,681.00	20,435.39	10,710.00	167.86	170.62	-143.60	-10,000.51	1,593.55	2,522.17	2,360.16	162.00	15.569				
18,400.00	8,681.00	20,535.39	10,710.00	169.48	172.21	-143.60	-10,100.51	1,594.52	2,522.16	2,358.61	163.55	15.421				
18,500.00	8,681.00	20,635.39	10,710.00	171.11	173.81	-143.60	-10,200.50	1,595.49	2,522.16	2,357.05	165.11	15.276				
18,600.00	8,681.00	20,735.39	10,710.00	172.73	175.41	-143.60	-10,300.50	1,596.45	2,522.16	2,355.50	166.66	15.134				
18,681.03	8,681.00	20,816.41	10,710.00	174.05	176.70	-143.60	-10,381.52	1,597.24	2,522.16	2,354.24	167.92	15.020				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	15.50	15.50	0.00	0.02	-90.35	-17.44	-2,872.18	2,872.23					
100.00	100.00	115.50	115.50	0.13	0.18	-90.35	-17.44	-2,872.18	2,872.23	2,872.01	0.22	N/A		
200.00	200.00	215.50	215.50	0.48	0.54	-90.35	-17.44	-2,872.18	2,872.23	2,871.51	0.72	3,963.096		
300.00	300.00	315.50	315.50	0.84	0.90	-90.35	-17.44	-2,872.18	2,872.23	2,871.00	1.23	2,332.757		
400.00	400.00	415.50	415.50	1.20	1.26	-90.35	-17.44	-2,872.18	2,872.23	2,870.49	1.74	1,652.576		
500.00	500.00	515.50	515.50	1.56	1.61	-90.35	-17.44	-2,872.18	2,872.23	2,869.99	2.24	1,279.454		
600.00	600.00	615.50	615.50	1.92	1.97	-90.35	-17.44	-2,872.18	2,872.23	2,869.48	2.75	1,043.772		
700.00	700.00	715.50	715.50	2.28	2.33	-90.35	-17.44	-2,872.18	2,872.23	2,868.97	3.26	881.407		
800.00	800.00	815.50	815.50	2.63	2.69	-90.35	-17.44	-2,872.18	2,872.23	2,868.47	3.77	762.753		
900.00	900.00	915.50	915.50	2.99	3.05	-90.35	-17.44	-2,872.18	2,872.23	2,867.96	4.27	672.253		
1,000.00	1,000.00	1,015.50	1,015.50	3.35	3.41	-90.35	-17.44	-2,872.18	2,872.23	2,867.45	4.78	600.951		
1,100.00	1,100.00	1,115.50	1,115.50	3.71	3.77	-90.35	-17.44	-2,872.18	2,872.23	2,866.95	5.29	543.323		
1,200.00	1,200.00	1,215.50	1,215.50	4.07	4.12	-90.35	-17.44	-2,872.18	2,872.23	2,866.44	5.79	495.780		
1,300.00	1,300.00	1,315.50	1,315.50	4.43	4.48	-90.35	-17.44	-2,872.18	2,872.23	2,865.93	6.30	455.888		
1,400.00	1,400.00	1,415.50	1,415.50	4.79	4.84	-90.35	-17.44	-2,872.18	2,872.23	2,865.43	6.81	421.937		
1,500.00	1,500.00	1,515.50	1,515.50	5.14	5.20	-90.35	-17.44	-2,872.18	2,872.23	2,864.92	7.31	392.693		
1,600.00	1,600.00	1,615.50	1,615.50	5.50	5.56	-90.35	-17.44	-2,872.18	2,872.23	2,864.41	7.82	367.239		
1,700.00	1,700.00	1,715.50	1,715.50	5.86	5.92	-90.35	-17.44	-2,872.18	2,872.23	2,863.90	8.33	344.884		
1,800.00	1,800.00	1,815.50	1,815.50	6.22	6.28	-90.35	-17.44	-2,872.18	2,872.23	2,863.40	8.84	325.095		
1,900.00	1,900.00	1,915.50	1,915.50	6.58	6.63	-90.35	-17.44	-2,872.18	2,872.23	2,862.89	9.34	307.454		
2,000.00	2,000.00	2,015.50	2,015.50	6.94	6.99	-90.35	-17.44	-2,872.18	2,872.23	2,862.38	9.85	291.628		
2,100.00	2,100.00	2,115.50	2,115.50	7.29	7.35	-90.35	-17.44	-2,872.18	2,872.23	2,861.88	10.36	277.352		
2,200.00	2,200.00	2,215.50	2,215.50	7.65	7.71	-90.35	-17.44	-2,872.18	2,872.23	2,861.37	10.86	264.409		
2,300.00	2,300.00	2,315.50	2,315.50	8.01	8.07	-90.35	-17.44	-2,872.18	2,872.23	2,860.86	11.37	252.619		
2,400.00	2,400.00	2,415.50	2,415.50	8.37	8.43	-90.35	-17.44	-2,872.18	2,872.23	2,860.36	11.88	241.836		
2,500.00	2,500.00	2,515.50	2,515.50	8.73	8.78	-90.35	-17.44	-2,872.18	2,872.23	2,859.85	12.38	231.936		
2,600.00	2,600.00	2,615.50	2,615.50	9.09	9.14	-90.35	-17.44	-2,872.18	2,872.23	2,859.34	12.89	222.815		
2,700.00	2,700.00	2,715.50	2,715.50	9.45	9.50	-90.35	-17.44	-2,872.18	2,872.23	2,858.84	13.40	214.384		
2,800.00	2,800.00	2,815.50	2,815.50	9.80	9.86	-90.35	-17.44	-2,872.18	2,872.23	2,858.33	13.90	206.568		
2,900.00	2,900.00	2,915.50	2,915.50	10.16	10.22	-90.35	-17.44	-2,872.18	2,872.23	2,857.82	14.41	199.301		
3,000.00	3,000.00	3,015.50	3,015.50	10.52	10.58	-90.35	-17.44	-2,872.18	2,872.23	2,857.31	14.92	192.529 CC		
3,001.74	3,001.74	3,017.24	3,017.24	10.53	10.58	90.01	-17.44	-2,872.18	2,872.23	2,857.31	14.93	192.418		
3,100.00	3,099.99	3,115.49	3,115.49	10.86	10.94	90.04	-17.44	-2,872.18	2,872.23	2,856.82	15.41	186.361		
3,104.34	3,104.33	3,119.83	3,119.83	10.88	10.95	90.04	-17.44	-2,872.18	2,872.23	2,856.80	15.43	186.108		
3,200.00	3,199.91	3,200.00	3,200.00	11.18	11.24	90.10	-17.44	-2,872.18	2,872.28	2,856.43	15.85	181.168 ES		
3,300.00	3,299.69	3,275.06	3,275.06	11.51	11.50	90.17	-17.96	-2,872.70	2,873.06	2,856.80	16.26	176.647		
3,400.00	3,399.27	3,340.06	3,340.03	11.84	11.71	90.23	-19.25	-2,874.00	2,875.10	2,858.46	16.65	172.719		
3,500.00	3,498.57	3,400.00	3,399.91	12.17	11.91	90.29	-21.13	-2,875.89	2,878.39	2,861.37	17.01	169.181		
3,533.06	3,531.33	3,426.46	3,426.33	12.28	12.00	90.32	-22.17	-2,876.94	2,879.73	2,862.58	17.15	167.892		
3,600.00	3,597.62	3,471.49	3,471.26	12.50	12.15	90.40	-24.24	-2,879.02	2,882.89	2,865.47	17.41	165.564		
3,700.00	3,696.65	3,570.95	3,570.48	12.85	12.48	90.58	-29.13	-2,883.94	2,887.97	2,870.08	17.89	161.456		
3,800.00	3,795.68	3,670.42	3,669.70	13.19	12.81	90.75	-34.03	-2,888.87	2,893.08	2,874.71	18.37	157.521		
3,900.00	3,894.70	3,769.89	3,768.93	13.54	13.15	90.93	-38.93	-2,893.80	2,898.21	2,879.36	18.85	153.750		
4,000.00	3,993.73	3,869.35	3,868.15	13.90	13.48	91.11	-43.82	-2,898.72	2,903.38	2,884.04	19.34	150.137		
4,100.00	4,092.76	3,968.82	3,967.38	14.26	13.82	91.28	-48.72	-2,903.65	2,908.57	2,888.74	19.83	146.674		
4,149.39	4,141.67	4,017.94	4,016.38	14.44	13.99	91.37	-51.14	-2,906.08	2,911.14	2,891.07	20.07	145.017		
4,200.00	4,191.83	4,068.31	4,066.63	14.62	14.17	91.49	-53.62	-2,908.58	2,913.78	2,893.45	20.33	143.356		
4,300.00	4,291.19	4,167.98	4,166.05	14.98	14.51	91.69	-58.52	-2,913.52	2,918.95	2,898.13	20.82	140.192		
4,400.00	4,390.81	4,267.78	4,265.61	15.34	14.85	91.84	-63.43	-2,918.46	2,924.05	2,902.73	21.32	137.179		
4,500.00	4,490.62	4,367.65	4,365.23	15.69	15.20	91.93	-68.35	-2,923.40	2,929.07	2,907.26	21.81	134.314		
4,600.00	4,490.56	4,467.51	4,464.85	16.04	15.55	91.98	-73.27	-2,928.35	2,934.00	2,911.71	22.30	131.588		
4,682.45	4,673.00	4,549.79	4,546.93	16.32	15.84	-88.39	-77.32	-2,932.43	2,938.00	2,915.30	22.70	129.426		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,700.00	4,690.55	4,567.30	4,564.40	16.38	15.90	-88.40	-78.18	-2,933.29	2,938.85	2,916.06	22.79	128.973		
4,800.00	4,790.55	4,667.06	4,663.91	16.73	16.25	-88.50	-83.09	-2,938.23	2,943.67	2,920.40	23.28	126.456		
4,900.00	4,890.55	4,766.81	4,763.42	17.08	16.60	-88.60	-88.00	-2,943.18	2,948.51	2,924.74	23.77	124.038		
5,000.00	4,990.55	4,866.57	4,862.94	17.43	16.95	-88.70	-92.91	-2,948.12	2,953.35	2,929.08	24.26	121.715		
5,100.00	5,090.55	4,966.33	4,962.45	17.78	17.31	-88.79	-97.82	-2,953.06	2,958.20	2,933.44	24.76	119.480		
5,200.00	5,190.55	5,066.08	5,061.96	18.13	17.66	-88.89	-102.73	-2,958.00	2,963.06	2,937.80	25.25	117.330		
5,300.00	5,290.55	5,165.84	5,161.47	18.48	18.02	-88.99	-107.64	-2,962.94	2,967.92	2,942.17	25.75	115.259		
5,400.00	5,390.55	5,265.59	5,260.99	18.83	18.37	-89.08	-112.55	-2,967.88	2,972.80	2,946.55	26.25	113.264		
5,500.00	5,490.55	5,365.35	5,360.50	19.19	18.73	-89.18	-117.46	-2,972.82	2,977.68	2,950.94	26.74	111.341		
5,600.00	5,590.55	5,465.11	5,460.01	19.54	19.09	-89.28	-122.37	-2,977.76	2,982.58	2,955.33	27.24	109.485		
5,700.00	5,690.55	5,564.86	5,559.52	19.89	19.45	-89.37	-127.28	-2,982.70	2,987.48	2,959.74	27.74	107.695		
5,800.00	5,790.55	5,664.62	5,659.04	20.24	19.81	-89.47	-132.19	-2,987.64	2,992.39	2,964.15	28.24	105.966		
5,900.00	5,890.55	5,764.37	5,758.55	20.59	20.17	-89.56	-137.10	-2,992.58	2,997.30	2,968.56	28.74	104.295		
6,000.00	5,990.55	5,864.13	5,858.06	20.95	20.53	-89.66	-142.02	-2,997.52	3,002.23	2,972.99	29.24	102.680		
6,100.00	6,090.55	5,963.88	5,957.57	21.30	20.89	-89.75	-146.93	-3,002.47	3,007.16	2,977.42	29.74	101.118		
6,200.00	6,190.55	6,063.64	6,057.08	21.65	21.25	-89.84	-151.84	-3,007.41	3,012.10	2,981.86	30.24	99.606		
6,300.00	6,290.55	6,163.40	6,156.60	22.00	21.61	-89.94	-156.75	-3,012.35	3,017.05	2,986.31	30.74	98.143		
6,400.00	6,390.55	6,263.15	6,256.11	22.36	21.97	-90.03	-161.66	-3,017.29	3,022.01	2,990.77	31.24	96.726		
6,500.00	6,490.55	6,362.91	6,355.62	22.71	22.34	-90.12	-166.57	-3,022.23	3,026.98	2,995.23	31.75	95.352		
6,600.00	6,590.55	6,462.66	6,455.13	23.06	22.70	-90.22	-171.48	-3,027.17	3,031.95	2,999.70	32.25	94.021		
6,700.00	6,690.55	6,562.45	6,554.45	23.42	23.40	-90.35	-178.49	-3,034.22	3,035.83	3,002.82	33.00	91.991		
6,800.00	6,790.55	6,813.87	6,806.05	23.77	23.95	-90.37	-179.44	-3,035.18	3,036.24	3,002.60	33.64	90.258		
6,900.00	6,890.55	6,913.87	6,906.05	24.13	24.29	-90.37	-179.44	-3,035.18	3,036.24	3,002.11	34.13	88.948		
7,000.00	6,990.55	7,013.87	7,006.05	24.48	24.64	-90.37	-179.44	-3,035.18	3,036.24	3,001.61	34.63	87.675		
7,100.00	7,090.55	7,113.87	7,106.05	24.83	24.98	-90.37	-179.44	-3,035.18	3,036.24	3,001.12	35.13	86.436		
7,200.00	7,190.55	7,213.87	7,206.05	25.19	25.33	-90.37	-179.44	-3,035.18	3,036.24	3,000.62	35.62	85.232		
7,300.00	7,290.55	7,313.87	7,306.05	25.54	25.68	-90.37	-179.44	-3,035.18	3,036.24	3,000.12	36.12	84.059		
7,400.00	7,390.55	7,413.87	7,406.05	25.90	26.02	-90.37	-179.44	-3,035.18	3,036.24	2,999.63	36.62	82.918		
7,500.00	7,490.55	7,513.87	7,506.05	26.25	26.37	-90.37	-179.44	-3,035.18	3,036.24	2,999.13	37.11	81.807		
7,600.00	7,590.55	7,613.87	7,606.05	26.61	26.72	-90.37	-179.44	-3,035.18	3,036.24	2,998.63	37.61	80.725		
7,700.00	7,690.55	7,713.87	7,706.05	26.96	27.07	-90.37	-179.44	-3,035.18	3,036.24	2,998.13	38.11	79.671		
7,800.00	7,790.55	7,813.87	7,806.05	27.32	27.42	-90.37	-179.44	-3,035.18	3,036.24	2,997.63	38.61	78.643		
7,900.00	7,890.55	7,913.87	7,906.05	27.67	27.76	-90.37	-179.44	-3,035.18	3,036.24	2,997.14	39.11	77.641		
8,000.00	7,990.55	8,013.87	8,006.05	28.03	28.11	-90.37	-179.44	-3,035.18	3,036.24	2,996.64	39.60	76.664		
8,100.00	8,090.55	8,113.87	8,106.05	28.38	28.46	-90.37	-179.44	-3,035.18	3,036.24	2,996.14	40.10	75.710		
8,117.49	8,108.04	8,131.36	8,123.54	28.44	28.52	-90.37	-179.44	-3,035.18	3,036.24	2,996.05	40.19	75.546		
8,150.00	8,140.53	8,163.85	8,156.03	28.56	28.64	90.21	-179.44	-3,035.18	3,036.25	2,995.89	40.35	75.246		
8,200.00	8,190.27	8,213.58	8,205.77	28.73	28.81	90.30	-179.44	-3,035.18	3,036.27	2,995.67	40.60	74.791		
8,250.00	8,239.37	8,262.69	8,254.87	28.91	28.98	90.47	-179.44	-3,035.18	3,036.33	2,995.49	40.84	74.340		
8,300.00	8,287.48	8,310.80	8,302.98	29.09	29.15	90.70	-179.44	-3,035.18	3,036.47	2,995.38	41.09	73.895		
8,350.00	8,334.22	8,357.54	8,349.72	29.27	29.31	90.98	-179.44	-3,035.18	3,036.75	2,995.41	41.34	73.459		
8,400.00	8,379.24	8,402.56	8,394.74	29.46	29.47	91.30	-179.44	-3,035.18	3,037.24	2,995.65	41.59	73.035		
8,450.00	8,422.20	8,445.51	8,437.70	29.66	29.62	91.64	-179.44	-3,035.18	3,038.00	2,996.17	41.83	72.625		
8,500.00	8,462.76	8,486.08	8,478.26	29.86	29.76	91.97	-179.44	-3,035.18	3,039.14	2,997.07	42.08	72.230		
8,550.00	8,500.63	8,523.95	8,516.13	30.07	29.90	92.28	-179.44	-3,035.18	3,040.74	2,998.43	42.32	71.854		
8,600.00	8,535.51	8,558.82	8,551.01	30.28	30.02	92.53	-179.44	-3,035.18	3,042.91	3,000.35	42.56	71.497		
8,650.00	8,567.13	8,590.45	8,582.63	30.51	30.13	92.71	-179.44	-3,035.18	3,045.71	3,002.92	42.80	71.163		
8,700.00	8,595.26	8,618.58	8,610.76	30.75	30.23	92.79	-179.44	-3,035.18	3,049.25	3,006.21	43.04	70.851		
8,750.00	8,619.68	8,643.00	8,635.18	30.99	30.31	92.76	-179.44	-3,035.18	3,053.59	3,010.31	43.27	70.565		
8,800.00	8,640.21	8,663.53	8,655.71	31.25	30.38	92.59	-179.44	-3,035.18	3,058.78	3,015.27	43.51	70.307		
8,850.00	8,656.69	8,680.01	8,672.19	31.52	30.44	92.27	-179.44	-3,035.18	3,064.85	3,021.12	43.74	70.076		
8,900.00	8,668.99	8,692.31	8,684.49	31.80	30.49	91.79	-179.44	-3,035.18	3,071.83	3,027.87	43.96	69.877		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 601H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
8,950.00	8,677.03	8,700.34	8,692.53	32.09	30.51	91.14	-179.44	-3,035.18	3,079.71	3,035.53	44.18	69.709				
9,000.00	8,680.73	8,704.05	8,696.23	32.38	30.53	90.33	-179.44	-3,035.18	3,088.45	3,044.06	44.39	69.574				
9,017.49	8,681.00	8,704.31	8,696.50	32.49	30.53	90.00	-179.44	-3,035.18	3,091.70	3,047.24	44.46	69.535				
9,100.00	8,681.00	8,704.31	8,696.50	33.00	30.53	90.00	-179.44	-3,035.18	3,108.31	3,063.50	44.81	69.362				
9,200.00	8,681.00	8,704.31	8,696.50	33.70	30.53	90.00	-179.44	-3,035.18	3,131.25	3,085.98	45.27	69.164				
9,300.00	8,681.00	8,704.31	8,696.50	34.46	30.53	90.00	-179.44	-3,035.18	3,157.19	3,111.42	45.76	68.988				
9,400.00	8,681.00	8,704.31	8,696.50	35.28	30.53	90.00	-179.44	-3,035.18	3,186.06	3,139.77	46.28	68.838				
9,500.00	8,681.00	8,704.31	8,696.50	36.15	30.53	90.00	-179.44	-3,035.18	3,217.77	3,170.95	46.82	68.722				
9,600.00	8,681.00	8,704.31	8,696.50	37.08	30.53	90.00	-179.44	-3,035.18	3,252.26	3,204.88	47.38	68.643				
9,700.00	8,681.00	8,704.31	8,696.50	38.06	30.53	90.00	-179.44	-3,035.18	3,289.42	3,241.47	47.95	68.607				
9,800.00	8,681.00	8,704.31	8,696.50	39.08	30.53	90.00	-179.44	-3,035.18	3,329.17	3,280.65	48.52	68.614				
9,900.00	8,681.00	8,704.31	8,696.50	40.15	30.53	90.00	-179.44	-3,035.18	3,371.42	3,322.33	49.10	68.669				
10,000.00	8,681.00	8,704.31	8,696.50	41.25	30.53	90.00	-179.44	-3,035.18	3,416.08	3,366.41	49.67	68.773				
10,100.00	8,681.00	8,704.31	8,696.50	42.39	30.53	90.00	-179.44	-3,035.18	3,463.05	3,412.81	50.24	68.929				
10,200.00	8,681.00	8,704.31	8,696.50	43.56	30.53	90.00	-179.44	-3,035.18	3,512.24	3,461.44	50.80	69.135				
10,300.00	8,681.00	8,704.31	8,696.50	44.77	30.53	90.00	-179.44	-3,035.18	3,563.56	3,512.20	51.36	69.390				
10,400.00	8,681.00	8,704.31	8,696.50	46.00	30.53	90.00	-179.44	-3,035.18	3,616.91	3,565.01	51.90	69.691				
10,500.00	8,681.00	8,704.31	8,696.50	47.25	30.53	90.00	-179.44	-3,035.18	3,672.21	3,619.78	52.43	70.041				
10,600.00	8,681.00	8,704.31	8,696.50	48.53	30.53	90.00	-179.44	-3,035.18	3,729.38	3,676.43	52.95	70.437				
10,700.00	8,681.00	8,704.31	8,696.50	49.83	30.53	90.00	-179.44	-3,035.18	3,788.32	3,734.87	53.45	70.878				
10,800.00	8,681.00	8,704.31	8,696.50	51.16	30.53	90.00	-179.44	-3,035.18	3,848.96	3,795.02	53.93	71.365				
10,900.00	8,681.00	8,704.31	8,696.50	52.50	30.53	90.00	-179.44	-3,035.18	3,911.21	3,856.81	54.40	71.895				
11,000.00	8,681.00	8,704.31	8,696.50	53.86	30.53	90.00	-179.44	-3,035.18	3,975.01	3,920.16	54.85	72.466				
11,100.00	8,681.00	8,704.31	8,696.50	55.23	30.53	90.00	-179.44	-3,035.18	4,040.27	3,984.98	55.29	73.076				
11,200.00	8,681.00	8,704.31	8,696.50	56.62	30.53	90.00	-179.44	-3,035.18	4,106.94	4,051.23	55.71	73.722				
11,300.00	8,681.00	8,704.31	8,696.50	58.02	30.53	90.00	-179.44	-3,035.18	4,174.93	4,118.82	56.11	74.402				
11,400.00	8,681.00	8,704.31	8,696.50	59.44	30.53	90.00	-179.44	-3,035.18	4,244.19	4,187.69	56.50	75.114				
11,500.00	8,681.00	8,704.31	8,696.50	60.86	30.53	90.00	-179.44	-3,035.18	4,314.65	4,257.78	56.88	75.858				
11,600.00	8,681.00	8,704.31	8,696.50	62.30	30.53	90.00	-179.44	-3,035.18	4,386.27	4,329.03	57.24	76.635				
11,700.00	8,681.00	8,704.31	8,696.50	63.75	30.53	90.00	-179.44	-3,035.18	4,458.98	4,401.40	57.58	77.442				
11,800.00	8,681.00	8,704.31	8,696.50	65.21	30.53	90.00	-179.44	-3,035.18	4,532.72	4,474.82	57.91	78.276				
11,900.00	8,681.00	15,351.33	12,123.00	66.68	73.00	138.47	-3,645.70	-3,000.47	4,577.49	4,503.39	74.11	61.768				
12,000.00	8,681.00	15,451.33	12,123.00	68.15	74.35	138.47	-3,745.69	-2,999.47	4,577.47	4,501.90	75.57	60.574				
12,100.00	8,681.00	15,551.33	12,123.00	69.63	75.71	138.47	-3,845.69	-2,998.47	4,577.45	4,500.42	77.04	59.418				
12,200.00	8,681.00	15,651.33	12,123.00	71.13	77.09	138.47	-3,945.68	-2,997.47	4,577.43	4,498.92	78.52	58.297				
12,300.00	8,681.00	15,751.33	12,123.00	72.62	78.47	138.47	-4,045.68	-2,996.46	4,577.42	4,497.41	80.01	57.211				
12,400.00	8,681.00	15,851.33	12,123.00	74.13	79.87	138.47	-4,145.67	-2,995.46	4,577.40	4,495.89	81.51	56.157				
12,500.00	8,681.00	15,951.33	12,123.00	75.64	81.27	138.47	-4,245.67	-2,994.46	4,577.38	4,494.36	83.02	55.135				
12,600.00	8,681.00	16,051.33	12,123.00	77.15	82.68	138.47	-4,345.66	-2,993.46	4,577.36	4,492.82	84.54	54.144				
12,700.00	8,681.00	16,151.33	12,123.00	78.68	84.11	138.47	-4,445.66	-2,992.46	4,577.34	4,491.27	86.07	53.183				
12,800.00	8,681.00	16,251.33	12,123.00	80.20	85.54	138.47	-4,545.65	-2,991.46	4,577.32	4,489.71	87.60	52.250				
12,900.00	8,681.00	16,351.33	12,123.00	81.74	86.97	138.47	-4,645.65	-2,990.46	4,577.30	4,488.15	89.15	51.345				
13,000.00	8,681.00	16,451.33	12,123.00	83.27	88.42	138.47	-4,745.64	-2,989.45	4,577.28	4,486.58	90.70	50.467				
13,100.00	8,681.00	16,551.33	12,123.00	84.81	89.87	138.47	-4,845.64	-2,988.45	4,577.26	4,485.00	92.26	49.615				
13,200.00	8,681.00	16,651.33	12,123.00	86.36	91.33	138.47	-4,945.63	-2,987.45	4,577.24	4,483.42	93.82	48.787				
13,300.00	8,681.00	16,751.33	12,123.00	87.91	92.80	138.47	-5,045.63	-2,986.45	4,577.22	4,481.83	95.39	47.984				
13,400.00	8,681.00	16,851.33	12,123.00	89.46	94.27	138.47	-5,145.62	-2,985.45	4,577.20	4,480.24	96.97	47.204				
13,500.00	8,681.00	16,951.33	12,123.00	91.01	95.75	138.47	-5,245.62	-2,984.45	4,577.18	4,478.64	98.55	46.446				
13,600.00	8,681.00	17,051.33	12,123.00	92.57	97.23	138.47	-5,345.61	-2,983.45	4,577.16	4,477.03	100.14	45.710				
13,700.00	8,681.00	17,151.33	12,123.00	94.13	98.72	138.47	-5,445.61	-2,982.45	4,577.14	4,475.42	101.73	44.995				
13,800.00	8,681.00	17,251.33	12,123.00	95.70	100.21	138.47	-5,545.60	-2,981.44	4,577.13	4,473.80	103.32	44.300				
13,900.00	8,681.00	17,351.33	12,123.00	97.27	101.71	138.47	-5,645.60	-2,980.44	4,577.11	4,472.19	104.92	43.626				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 601H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,000.00	8,681.00	17,451.33	12,123.00	98.84	103.21	138.47	-5,745.59	-2,979.44	4,577.09	4,470.57	106.52	42.970				
14,100.00	8,681.00	17,551.33	12,123.00	100.41	104.72	138.47	-5,845.59	-2,978.44	4,577.07	4,468.94	108.12	42.332				
14,200.00	8,681.00	17,651.33	12,123.00	101.99	106.23	138.47	-5,945.58	-2,977.44	4,577.05	4,467.32	109.73	41.711				
14,300.00	8,681.00	17,751.33	12,123.00	103.57	107.75	138.47	-6,045.58	-2,976.44	4,577.03	4,465.68	111.35	41.107				
14,400.00	8,681.00	17,851.33	12,123.00	105.15	109.27	138.47	-6,145.57	-2,975.44	4,577.01	4,464.05	112.96	40.518				
14,500.00	8,681.00	17,951.33	12,123.00	106.73	110.79	138.47	-6,245.57	-2,974.43	4,576.99	4,462.41	114.58	39.945				
14,600.00	8,681.00	18,051.33	12,123.00	108.31	112.32	138.47	-6,345.56	-2,973.43	4,576.97	4,460.77	116.21	39.387				
14,700.00	8,681.00	18,151.33	12,123.00	109.90	113.85	138.47	-6,445.56	-2,972.43	4,576.95	4,459.12	117.83	38.843				
14,800.00	8,681.00	18,251.33	12,123.00	111.49	115.39	138.47	-6,545.55	-2,971.43	4,576.93	4,457.47	119.46	38.313				
14,900.00	8,681.00	18,351.33	12,123.00	113.08	116.92	138.47	-6,645.55	-2,970.43	4,576.91	4,455.82	121.10	37.796				
15,000.00	8,681.00	18,451.33	12,123.00	114.67	118.46	138.47	-6,745.54	-2,969.43	4,576.89	4,454.16	122.73	37.292				
15,100.00	8,681.00	18,551.33	12,123.00	116.27	120.01	138.47	-6,845.54	-2,968.43	4,576.87	4,452.50	124.37	36.801				
15,200.00	8,681.00	18,651.33	12,123.00	117.86	121.55	138.47	-6,945.53	-2,967.42	4,576.86	4,450.84	126.01	36.321				
15,300.00	8,681.00	18,751.33	12,123.00	119.46	123.10	138.47	-7,045.53	-2,966.42	4,576.84	4,449.18	127.65	35.853				
15,400.00	8,681.00	18,851.33	12,123.00	121.06	124.65	138.47	-7,145.52	-2,965.42	4,576.82	4,447.52	129.30	35.397				
15,500.00	8,681.00	18,951.33	12,123.00	122.66	126.21	138.48	-7,245.52	-2,964.42	4,576.80	4,445.85	130.95	34.952				
15,600.00	8,681.00	19,051.33	12,123.00	124.26	127.77	138.48	-7,345.51	-2,963.42	4,576.78	4,444.19	132.59	34.518				
15,700.00	8,681.00	19,151.33	12,123.00	125.86	129.32	138.48	-7,445.51	-2,962.42	4,576.76	4,442.52	134.24	34.094				
15,800.00	8,681.00	19,251.33	12,123.00	127.46	130.89	138.48	-7,545.50	-2,961.42	4,576.74	4,440.85	135.89	33.680				
15,900.00	8,681.00	19,351.33	12,123.00	129.07	132.45	138.48	-7,645.50	-2,960.42	4,576.72	4,439.18	137.54	33.275				
16,000.00	8,681.00	19,451.33	12,123.00	130.67	134.01	138.48	-7,745.49	-2,959.41	4,576.70	4,437.51	139.19	32.880				
16,100.00	8,681.00	19,551.33	12,123.00	132.28	135.58	138.48	-7,845.49	-2,958.41	4,576.68	4,435.83	140.85	32.493				
16,200.00	8,681.00	19,651.33	12,123.00	133.89	137.15	138.48	-7,945.48	-2,957.41	4,576.66	4,434.15	142.51	32.115				
16,300.00	8,681.00	19,751.33	12,123.00	135.50	138.72	138.48	-8,045.48	-2,956.41	4,576.64	4,432.48	144.17	31.746				
16,400.00	8,681.00	19,851.33	12,123.00	137.11	140.30	138.48	-8,145.47	-2,955.41	4,576.62	4,430.80	145.83	31.384				
16,500.00	8,681.00	19,951.33	12,123.00	138.72	141.87	138.48	-8,245.47	-2,954.41	4,576.60	4,429.11	147.49	31.030				
16,600.00	8,681.00	20,051.33	12,123.00	140.33	143.45	138.48	-8,345.46	-2,953.41	4,576.58	4,427.43	149.15	30.684				
16,700.00	8,681.00	20,151.33	12,123.00	141.95	145.03	138.48	-8,445.46	-2,952.40	4,576.57	4,425.75	150.82	30.345				
16,800.00	8,681.00	20,251.33	12,123.00	143.56	146.61	138.48	-8,545.45	-2,951.40	4,576.55	4,424.06	152.49	30.013				
16,900.00	8,681.00	20,351.33	12,123.00	145.17	148.19	138.48	-8,645.45	-2,950.40	4,576.53	4,422.37	154.15	29.688				
17,000.00	8,681.00	20,451.33	12,123.00	146.79	149.77	138.48	-8,745.44	-2,949.40	4,576.51	4,420.68	155.82	29.370				
17,100.00	8,681.00	20,551.33	12,123.00	148.41	151.36	138.48	-8,845.44	-2,948.40	4,576.49	4,418.99	157.49	29.058				
17,200.00	8,681.00	20,651.33	12,123.00	150.02	152.94	138.48	-8,945.43	-2,947.40	4,576.47	4,417.31	159.16	28.754				
17,300.00	8,681.00	20,751.33	12,123.00	151.64	154.53	138.48	-9,045.43	-2,946.40	4,576.45	4,415.62	160.83	28.455				
17,400.00	8,681.00	20,851.33	12,123.00	153.26	156.12	138.48	-9,145.42	-2,945.40	4,576.43	4,413.93	162.50	28.162				
17,500.00	8,681.00	20,951.33	12,123.00	154.88	157.71	138.48	-9,245.42	-2,944.39	4,576.41	4,412.24	164.17	27.875				
17,600.00	8,681.00	21,051.33	12,123.00	156.50	159.30	138.48	-9,345.41	-2,943.39	4,576.39	4,410.54	165.85	27.594				
17,700.00	8,681.00	21,151.33	12,123.00	158.12	160.89	138.48	-9,445.41	-2,942.39	4,576.37	4,408.85	167.52	27.318				
17,800.00	8,681.00	21,251.33	12,123.00	159.74	162.49	138.48	-9,545.40	-2,941.39	4,576.35	4,407.16	169.20	27.047				
17,900.00	8,681.00	21,351.33	12,123.00	161.36	164.08	138.48	-9,645.40	-2,940.39	4,576.33	4,405.46	170.87	26.782				
18,000.00	8,681.00	21,451.33	12,123.00	162.99	165.68	138.48	-9,745.39	-2,939.39	4,576.31	4,403.76	172.55	26.522				
18,100.00	8,681.00	21,551.33	12,123.00	164.61	167.27	138.48	-9,845.39	-2,938.39	4,576.29	4,402.07	174.23	26.266				
18,200.00	8,681.00	21,651.33	12,123.00	166.23	168.87	138.48	-9,945.38	-2,937.38	4,576.28	4,400.37	175.90	26.016				
18,300.00	8,681.00	21,751.33	12,123.00	167.86	170.47	138.48	-10,045.38	-2,936.38	4,576.26	4,398.68	177.58	25.770				
18,400.00	8,681.00	21,851.33	12,123.00	169.48	172.07	138.48	-10,145.37	-2,935.38	4,576.24	4,396.98	179.26	25.529				
18,500.00	8,681.00	21,951.33	12,123.00	171.11	173.67	138.48	-10,245.37	-2,934.38	4,576.22	4,395.28	180.94	25.292				
18,600.00	8,681.00	22,051.33	12,123.00	172.73	175.27	138.48	-10,345.36	-2,933.38	4,576.20	4,393.58	182.62	25.059				
18,678.70	8,681.00	22,129.15	12,123.00	174.01	176.47	138.48	-10,423.18	-2,932.60	4,576.18	4,392.30	183.88	24.887				
18,681.03	8,681.00	22,129.15	12,123.00	174.05	176.47	138.48	-10,423.18	-2,932.60	4,576.18	4,392.28	183.90	24.884 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 604H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance						Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	0.00	0.00	0.00	0.00	89.42	10.03	989.79	990.19							
100.00	100.00	73.70	73.70	0.13	0.09	89.42	10.03	989.79	989.84	989.68	0.16	6,350.899				
200.00	200.00	173.70	173.70	0.48	0.39	89.42	10.03	989.79	989.84	989.22	0.62	1,593.146				
300.00	300.00	273.70	273.70	0.84	0.75	89.42	10.03	989.79	989.84	988.71	1.13	878.566				
400.00	400.00	373.70	373.70	1.20	1.11	89.42	10.03	989.79	989.84	988.21	1.63	606.150				
500.00	500.00	473.70	473.70	1.56	1.47	89.42	10.03	989.79	989.84	987.70	2.14	462.622				
600.00	600.00	573.70	573.70	1.92	1.82	89.42	10.03	989.79	989.84	987.19	2.65	374.035				
700.00	700.00	673.70	673.70	2.28	2.18	89.42	10.03	989.79	989.84	986.69	3.15	313.916				
800.00	800.00	773.70	773.70	2.63	2.54	89.42	10.03	989.79	989.84	986.18	3.66	270.444				
900.00	900.00	873.70	873.70	2.99	2.90	89.42	10.03	989.79	989.84	985.67	4.17	237.546				
1,000.00	1,000.00	973.70	973.70	3.35	3.26	89.42	10.03	989.79	989.84	985.17	4.67	211.783				
1,100.00	1,100.00	1,073.70	1,073.70	3.71	3.62	89.42	10.03	989.79	989.84	984.66	5.18	191.061				
1,200.00	1,200.00	1,173.70	1,173.70	4.07	3.97	89.42	10.03	989.79	989.84	984.15	5.69	174.033				
1,300.00	1,300.00	1,273.70	1,273.70	4.43	4.33	89.42	10.03	989.79	989.84	983.65	6.19	159.791				
1,400.00	1,400.00	1,373.70	1,373.70	4.79	4.69	89.42	10.03	989.79	989.84	983.14	6.70	147.704				
1,500.00	1,500.00	1,473.70	1,473.70	5.14	5.05	89.42	10.03	989.79	989.84	982.63	7.21	137.317				
1,600.00	1,600.00	1,573.70	1,573.70	5.50	5.41	89.42	10.03	989.79	989.84	982.13	7.72	128.294				
1,700.00	1,700.00	1,673.70	1,673.70	5.86	5.77	89.42	10.03	989.79	989.84	981.62	8.22	120.385				
1,800.00	1,800.00	1,773.70	1,773.70	6.22	6.13	89.42	10.03	989.79	989.84	981.11	8.73	113.393				
1,900.00	1,900.00	1,873.70	1,873.70	6.58	6.48	89.42	10.03	989.79	989.84	980.60	9.24	107.170				
2,000.00	2,000.00	1,973.70	1,973.70	6.94	6.84	89.42	10.03	989.79	989.84	980.10	9.74	101.594				
2,100.00	2,100.00	2,073.70	2,073.70	7.29	7.20	89.42	10.03	989.79	989.84	979.59	10.25	96.569				
2,200.00	2,200.00	2,173.70	2,173.70	7.65	7.56	89.42	10.03	989.79	989.84	979.08	10.76	92.018				
2,300.00	2,300.00	2,273.70	2,273.70	8.01	7.92	89.42	10.03	989.79	989.84	978.58	11.26	87.877				
2,400.00	2,400.00	2,373.70	2,373.70	8.37	8.28	89.42	10.03	989.79	989.84	978.07	11.77	84.092				
2,500.00	2,500.00	2,473.70	2,473.70	8.73	8.63	89.42	10.03	989.79	989.84	977.56	12.28	80.620				
2,600.00	2,600.00	2,573.70	2,573.70	9.09	8.99	89.42	10.03	989.79	989.84	977.06	12.78	77.423				
2,700.00	2,700.00	2,673.70	2,673.70	9.45	9.35	89.42	10.03	989.79	989.84	976.55	13.29	74.470				
2,800.00	2,800.00	2,773.70	2,773.70	9.80	9.71	89.42	10.03	989.79	989.84	976.04	13.80	71.734				
2,900.00	2,900.00	2,873.70	2,873.70	10.16	10.07	89.42	10.03	989.79	989.84	975.54	14.31	69.192				
3,000.00	3,000.00	2,973.70	2,973.70	10.52	10.43	89.42	10.03	989.79	989.84	975.03	14.81	66.824 CC				
3,100.00	3,099.99	3,073.69	3,073.69	10.86	10.79	-90.30	10.03	989.79	989.85	974.54	15.31	64.669				
3,200.00	3,199.91	3,173.61	3,173.61	11.18	11.14	-90.52	10.03	989.79	989.88	974.09	15.79	62.700				
3,300.00	3,299.69	3,273.39	3,273.39	11.51	11.50	-90.90	10.03	989.79	989.96	973.69	16.27	60.846				
3,400.00	3,399.27	3,372.97	3,372.97	11.84	11.86	-91.43	10.03	989.79	990.14	973.39	16.75	59.099 ES				
3,500.00	3,498.57	3,457.55	3,457.55	12.17	12.16	-91.98	9.98	990.22	991.04	973.85	17.20	57.629				
3,533.06	3,531.33	3,483.64	3,483.63	12.28	12.25	-92.17	9.92	990.70	991.81	974.48	17.34	57.206				
3,600.00	3,597.62	3,536.42	3,536.39	12.50	12.43	-92.58	9.73	992.21	994.12	976.50	17.62	56.423				
3,700.00	3,696.65	3,615.22	3,615.11	12.85	12.70	-93.17	9.28	995.81	999.39	981.35	18.04	55.412				
3,800.00	3,795.68	3,700.85	3,700.55	13.19	12.99	-93.79	8.59	1,001.39	1,006.71	988.24	18.47	54.496				
3,900.00	3,894.70	3,799.76	3,799.22	13.54	13.33	-94.49	7.74	1,008.25	1,014.61	995.65	18.96	53.516				
4,000.00	3,993.73	3,898.67	3,897.89	13.90	13.67	-95.18	6.89	1,015.10	1,022.67	1,003.22	19.45	52.584				
4,100.00	4,092.76	3,997.58	3,996.56	14.26	14.01	-95.86	6.04	1,021.96	1,030.87	1,010.93	19.94	51.695				
4,149.39	4,141.67	4,046.44	4,045.29	14.44	14.18	-96.19	5.63	1,025.34	1,034.98	1,014.79	20.19	51.272				
4,200.00	4,191.83	4,096.54	4,095.27	14.62	14.36	-96.57	5.19	1,028.82	1,039.18	1,018.74	20.44	50.849				
4,300.00	4,291.19	4,195.75	4,194.24	14.98	14.71	-97.21	4.34	1,035.69	1,047.34	1,026.40	20.93	50.034				
4,400.00	4,390.81	4,295.21	4,293.46	15.34	15.06	-97.70	3.49	1,042.59	1,055.23	1,033.80	21.43	49.247				
4,500.00	4,490.62	4,394.83	4,392.84	15.69	15.41	-98.03	2.63	1,049.49	1,062.80	1,040.88	21.92	48.486				
4,600.00	4,590.56	4,494.55	4,492.32	16.04	15.76	-98.23	1.78	1,056.40	1,070.02	1,047.61	22.41	47.749				
4,682.45	4,673.00	4,576.80	4,574.37	16.32	16.05	81.37	1.07	1,062.10	1,075.69	1,052.88	22.81	47.152				
4,700.00	4,690.55	4,594.31	4,591.83	16.38	16.11	81.39	0.92	1,063.32	1,076.87	1,053.97	22.90	47.026				
4,800.00	4,790.55	4,694.07	4,691.34	16.73	16.47	81.49	0.06	1,070.23	1,083.60	1,060.21	23.39	46.323				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 604H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
4,900.00	4,890.55	4,793.82	4,790.86	17.08	16.82	81.58	-0.79	1,077.14	1,090.33	1,066.44	23.89	45.649				
5,000.00	4,990.55	4,893.58	4,890.37	17.43	17.18	81.68	-1.65	1,084.06	1,097.06	1,072.68	24.38	45.000				
5,100.00	5,090.55	4,993.34	4,989.88	17.78	17.53	81.78	-2.51	1,090.97	1,103.80	1,078.93	24.87	44.377				
5,200.00	5,190.55	5,093.09	5,089.39	18.13	17.89	81.87	-3.36	1,097.88	1,110.54	1,085.17	25.37	43.777				
5,300.00	5,290.55	5,192.85	5,188.90	18.48	18.25	81.97	-4.22	1,104.80	1,117.28	1,091.42	25.86	43.199				
5,400.00	5,390.55	5,292.60	5,288.42	18.83	18.61	82.06	-5.08	1,111.71	1,124.03	1,097.67	26.36	42.642				
5,500.00	5,490.55	5,392.36	5,387.93	19.19	18.97	82.15	-5.93	1,118.63	1,130.77	1,103.92	26.86	42.105				
5,600.00	5,590.55	5,492.11	5,487.44	19.54	19.33	82.24	-6.79	1,125.54	1,137.52	1,110.17	27.35	41.586				
5,700.00	5,690.55	5,591.87	5,586.95	19.89	19.69	82.33	-7.65	1,132.45	1,144.28	1,116.43	27.85	41.086				
5,800.00	5,790.55	5,691.63	5,686.47	20.24	20.05	82.42	-8.50	1,139.37	1,151.03	1,122.69	28.35	40.603				
5,900.00	5,890.55	5,791.38	5,785.98	20.59	20.41	82.51	-9.36	1,146.28	1,157.79	1,128.95	28.85	40.136				
6,000.00	5,990.55	5,891.14	5,885.49	20.95	20.77	82.59	-10.21	1,153.19	1,164.56	1,135.21	29.35	39.685				
6,100.00	6,090.55	5,990.89	5,985.00	21.30	21.14	82.68	-11.07	1,160.11	1,171.32	1,141.48	29.84	39.248				
6,200.00	6,190.55	6,090.65	6,084.51	21.65	21.50	82.76	-11.93	1,167.02	1,178.09	1,147.74	30.34	38.825				
6,300.00	6,290.55	6,190.41	6,184.03	22.00	21.86	82.85	-12.78	1,173.94	1,184.86	1,154.01	30.84	38.416				
6,400.00	6,390.55	6,290.16	6,283.54	22.36	22.23	82.93	-13.64	1,180.85	1,191.63	1,160.29	31.34	38.019				
6,500.00	6,490.55	6,389.92	6,383.05	22.71	22.59	83.01	-14.50	1,187.76	1,198.40	1,166.56	31.84	37.635				
6,600.00	6,590.55	6,489.67	6,482.56	23.06	22.95	83.09	-15.35	1,194.68	1,205.18	1,172.84	32.34	37.262				
6,700.00	6,690.55	6,589.43	6,582.08	23.42	23.32	83.17	-16.21	1,201.59	1,211.96	1,179.11	32.84	36.900				
6,800.00	6,790.55	6,701.94	6,694.33	23.77	23.73	83.26	-17.15	1,209.17	1,218.59	1,185.20	33.39	36.495				
6,900.00	6,890.55	6,846.84	6,839.10	24.13	24.25	83.32	-17.86	1,214.94	1,222.49	1,188.46	34.03	35.926				
7,000.00	6,990.55	6,972.00	6,964.25	24.48	24.69	83.33	-17.97	1,215.79	1,223.06	1,188.48	34.59	35.361				
7,100.00	7,090.55	7,072.00	7,064.25	24.83	25.04	83.33	-17.97	1,215.79	1,223.06	1,187.98	35.09	34.857				
7,200.00	7,190.55	7,172.00	7,164.25	25.19	25.39	83.33	-17.97	1,215.79	1,223.06	1,187.48	35.59	34.368				
7,300.00	7,290.55	7,272.00	7,264.25	25.54	25.74	83.33	-17.97	1,215.79	1,223.06	1,186.98	36.09	33.892				
7,400.00	7,390.55	7,372.00	7,364.25	25.90	26.09	83.33	-17.97	1,215.79	1,223.06	1,186.48	36.59	33.429				
7,500.00	7,490.55	7,472.00	7,464.25	26.25	26.44	83.33	-17.97	1,215.79	1,223.06	1,185.98	37.09	32.978				
7,600.00	7,590.55	7,572.00	7,564.25	26.61	26.79	83.33	-17.97	1,215.79	1,223.06	1,185.48	37.59	32.539				
7,700.00	7,690.55	7,672.00	7,664.25	26.96	27.14	83.33	-17.97	1,215.79	1,223.06	1,184.98	38.09	32.111				
7,800.00	7,790.55	7,772.00	7,764.25	27.32	27.49	83.33	-17.97	1,215.79	1,223.06	1,184.48	38.59	31.695				
7,900.00	7,890.55	7,872.00	7,864.25	27.67	27.84	83.33	-17.97	1,215.79	1,223.06	1,183.97	39.09	31.288				
8,000.00	7,990.55	7,972.00	7,964.25	28.03	28.20	83.33	-17.97	1,215.79	1,223.06	1,183.47	39.59	30.892				
8,100.00	8,090.55	8,072.00	8,064.25	28.38	28.55	83.33	-17.97	1,215.79	1,223.06	1,182.97	40.09	30.506				
8,117.49	8,108.04	8,089.48	8,081.74	28.44	28.61	83.33	-17.97	1,215.79	1,223.06	1,182.88	40.18	30.440				
8,150.00	8,140.53	8,121.98	8,114.23	28.56	28.72	-96.14	-17.97	1,215.79	1,223.16	1,182.82	40.34	30.320				
8,200.00	8,190.27	8,171.71	8,163.97	28.73	28.90	-96.32	-17.97	1,215.79	1,223.71	1,183.12	40.59	30.150				
8,250.00	8,239.37	8,220.82	8,213.07	28.91	29.07	-96.64	-17.97	1,215.79	1,224.78	1,183.95	40.84	29.992				
8,300.00	8,287.48	8,268.92	8,261.18	29.09	29.24	-97.08	-17.97	1,215.79	1,226.47	1,185.38	41.09	29.852				
8,350.00	8,334.22	8,315.67	8,307.92	29.27	29.41	-97.61	-17.97	1,215.79	1,228.89	1,187.56	41.33	29.731				
8,400.00	8,379.24	8,360.69	8,352.94	29.46	29.56	-98.18	-17.97	1,215.79	1,232.20	1,190.62	41.58	29.633				
8,450.00	8,422.20	8,403.64	8,395.90	29.66	29.72	-98.76	-17.97	1,215.79	1,236.57	1,194.75	41.83	29.564				
8,500.00	8,462.76	8,444.21	8,436.46	29.86	29.86	-99.29	-17.97	1,215.79	1,242.20	1,200.13	42.07	29.527				
8,550.00	8,500.63	8,482.07	8,474.33	30.07	29.99	-99.72	-17.97	1,215.79	1,249.26	1,206.95	42.31	29.526				
8,600.00	8,535.51	8,516.95	8,509.21	30.28	30.12	-99.99	-17.97	1,215.79	1,257.93	1,215.39	42.55	29.566				
8,650.00	8,567.13	8,548.58	8,540.83	30.51	30.23	-100.05	-17.97	1,215.79	1,268.38	1,225.61	42.78	29.651				
8,700.00	8,595.26	8,576.71	8,568.96	30.75	30.33	-99.86	-17.97	1,215.79	1,280.73	1,237.73	43.00	29.784				
8,750.00	8,619.68	8,601.13	8,593.38	30.99	30.41	-99.36	-17.97	1,215.79	1,295.07	1,251.86	43.22	29.967				
8,800.00	8,640.21	8,621.66	8,613.91	31.25	30.48	-98.51	-17.97	1,215.79	1,311.44	1,268.02	43.42	30.202				
8,850.00	8,656.69	8,638.14	8,630.39	31.52	30.54	-97.27	-17.97	1,215.79	1,329.83	1,286.21	43.62	30.490				
8,900.00	8,668.99	8,650.44	8,642.69	31.80	30.59	-95.61	-17.97	1,215.79	1,350.15	1,306.36	43.79	30.830				
8,950.00	8,677.03	8,658.47	8,650.73	32.09	30.61	-93.52	-17.97	1,215.79	1,372.31	1,328.35	43.96	31.220				
9,000.00	8,680.73	8,662.18	8,654.43	32.38	30.63	-90.99	-17.97	1,215.79	1,396.10	1,352.00	44.10	31.658				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 604H - OH - Plan #2		Offset Site Error: 0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
9,017.49	8,681.00	8,662.44	8,654.70	32.49	30.63	-90.00	-17.97	1,215.79	1,404.77	1,360.63	44.14	31.822				
9,100.00	8,681.00	8,662.44	8,654.70	33.00	30.63	-90.00	-17.97	1,215.79	1,447.84	1,403.48	44.35	32.643				
9,200.00	8,681.00	8,662.44	8,654.70	33.70	30.63	-90.00	-17.97	1,215.79	1,504.45	1,459.85	44.60	33.732				
9,300.00	8,681.00	8,662.44	8,654.70	34.46	30.63	-90.00	-17.97	1,215.79	1,565.41	1,520.57	44.84	34.914				
9,400.00	8,681.00	8,662.44	8,654.70	35.28	30.63	-90.00	-17.97	1,215.79	1,630.23	1,585.17	45.05	36.183				
9,500.00	8,681.00	8,662.44	8,654.70	36.15	30.63	-90.00	-17.97	1,215.79	1,698.46	1,653.20	45.26	37.528				
9,600.00	8,681.00	8,662.44	8,654.70	37.08	30.63	-90.00	-17.97	1,215.79	1,769.72	1,724.27	45.45	38.940				
9,700.00	8,681.00	8,662.44	8,654.70	38.06	30.63	-90.00	-17.97	1,215.79	1,843.65	1,798.03	45.62	40.413				
9,800.00	8,681.00	8,662.44	8,654.70	39.08	30.63	-90.00	-17.97	1,215.79	1,919.94	1,874.16	45.78	41.939				
9,900.00	8,681.00	8,662.44	8,654.70	40.15	30.63	-90.00	-17.97	1,215.79	1,998.33	1,952.41	45.92	43.514				
10,000.00	8,681.00	8,662.44	8,654.70	41.25	30.63	-90.00	-17.97	1,215.79	2,078.57	2,032.51	46.06	45.132				
10,100.00	8,681.00	8,662.44	8,654.70	42.39	30.63	-90.00	-17.97	1,215.79	2,160.46	2,114.28	46.18	46.787				
10,200.00	8,681.00	8,662.44	8,654.70	43.56	30.63	-90.00	-17.97	1,215.79	2,243.82	2,197.53	46.29	48.476				
10,300.00	8,681.00	8,662.44	8,654.70	44.77	30.63	-90.00	-17.97	1,215.79	2,328.49	2,282.10	46.39	50.196				
10,400.00	8,681.00	8,662.44	8,654.70	46.00	30.63	-90.00	-17.97	1,215.79	2,414.33	2,367.85	46.48	51.942				
10,500.00	8,681.00	8,662.44	8,654.70	47.25	30.63	-90.00	-17.97	1,215.79	2,501.23	2,454.66	46.57	53.712				
10,600.00	8,681.00	8,662.44	8,654.70	48.53	30.63	-90.00	-17.97	1,215.79	2,589.07	2,542.42	46.65	55.503				
10,700.00	8,681.00	8,662.44	8,654.70	49.83	30.63	-90.00	-17.97	1,215.79	2,677.76	2,631.04	46.72	57.314				
10,800.00	8,681.00	8,662.44	8,654.70	51.16	30.63	-90.00	-17.97	1,215.79	2,767.23	2,720.44	46.79	59.140				
10,900.00	8,681.00	8,662.44	8,654.70	52.50	30.63	-90.00	-17.97	1,215.79	2,857.39	2,810.53	46.86	60.982				
11,000.00	8,681.00	8,662.44	8,654.70	53.86	30.63	-90.00	-17.97	1,215.79	2,948.19	2,901.27	46.92	62.837				
11,100.00	8,681.00	8,662.44	8,654.70	55.23	30.63	-90.00	-17.97	1,215.79	3,039.56	2,992.59	46.98	64.704				
11,200.00	8,681.00	8,662.44	8,654.70	56.62	30.63	-90.00	-17.97	1,215.79	3,131.47	3,084.44	47.03	66.581				
11,300.00	8,681.00	8,662.44	8,654.70	58.02	30.63	-90.00	-17.97	1,215.79	3,223.85	3,176.77	47.09	68.468				
11,400.00	8,681.00	8,662.44	8,654.70	59.44	30.63	-90.00	-17.97	1,215.79	3,316.68	3,269.54	47.14	70.363				
11,500.00	8,681.00	8,662.44	8,654.70	60.86	30.63	-90.00	-17.97	1,215.79	3,409.91	3,362.73	47.19	72.266				
11,600.00	8,681.00	14,972.42	11,925.00	62.30	68.63	-159.60	-3,303.41	1,247.96	3,489.18	3,436.38	52.79	66.091				
11,700.00	8,681.00	15,072.42	11,925.00	63.75	69.94	-159.60	-3,403.40	1,248.94	3,489.18	3,435.35	53.83	64.821				
11,800.00	8,681.00	15,172.42	11,925.00	65.21	71.27	-159.60	-3,503.40	1,249.92	3,489.18	3,434.31	54.87	63.588				
11,900.00	8,681.00	15,272.42	11,925.00	66.68	72.61	-159.60	-3,603.40	1,250.90	3,489.18	3,433.26	55.93	62.389				
12,000.00	8,681.00	15,372.42	11,925.00	68.15	73.96	-159.60	-3,703.39	1,251.88	3,489.19	3,432.19	56.99	61.223				
12,100.00	8,681.00	15,472.42	11,925.00	69.63	75.33	-159.60	-3,803.39	1,252.86	3,489.19	3,431.12	58.07	60.090				
12,200.00	8,681.00	15,572.42	11,925.00	71.13	76.70	-159.60	-3,903.38	1,253.83	3,489.19	3,430.04	59.15	58.988				
12,300.00	8,681.00	15,672.42	11,925.00	72.62	78.09	-159.60	-4,003.38	1,254.81	3,489.19	3,428.95	60.24	57.918				
12,400.00	8,681.00	15,772.42	11,925.00	74.13	79.49	-159.60	-4,103.37	1,255.79	3,489.19	3,427.85	61.35	56.878				
12,500.00	8,681.00	15,872.42	11,925.00	75.64	80.90	-159.60	-4,203.37	1,256.77	3,489.20	3,426.74	62.46	55.867				
12,600.00	8,681.00	15,972.42	11,925.00	77.15	82.31	-159.60	-4,303.36	1,257.75	3,489.20	3,425.63	63.57	54.886				
12,700.00	8,681.00	16,072.42	11,925.00	78.68	83.74	-159.60	-4,403.36	1,258.73	3,489.20	3,424.51	64.70	53.932				
12,800.00	8,681.00	16,172.42	11,925.00	80.20	85.17	-159.60	-4,503.35	1,259.71	3,489.20	3,423.38	65.83	53.005				
12,900.00	8,681.00	16,272.42	11,925.00	81.74	86.61	-159.60	-4,603.35	1,260.69	3,489.21	3,422.24	66.96	52.105				
13,000.00	8,681.00	16,372.42	11,925.00	83.27	88.06	-159.60	-4,703.34	1,261.67	3,489.21	3,421.10	68.11	51.230				
13,100.00	8,681.00	16,472.42	11,925.00	84.81	89.51	-159.60	-4,803.34	1,262.65	3,489.21	3,419.95	69.26	50.380				
13,200.00	8,681.00	16,572.42	11,925.00	86.36	90.97	-159.60	-4,903.33	1,263.63	3,489.21	3,418.80	70.41	49.554				
13,300.00	8,681.00	16,672.42	11,925.00	87.91	92.44	-159.60	-5,003.33	1,264.60	3,489.22	3,417.64	71.57	48.751				
13,400.00	8,681.00	16,772.42	11,925.00	89.46	93.92	-159.60	-5,103.32	1,265.58	3,489.22	3,416.49	72.73	47.972				
13,500.00	8,681.00	16,872.42	11,925.00	91.01	95.39	-159.60	-5,203.32	1,266.56	3,489.22	3,415.32	73.90	47.216				
13,600.00	8,681.00	16,972.42	11,925.00	92.57	96.88	-159.60	-5,303.31	1,267.54	3,489.22	3,414.15	75.07	46.480				
13,700.00	8,681.00	17,072.42	11,925.00	94.13	98.37	-159.60	-5,403.31	1,268.52	3,489.23	3,412.98	76.24	45.764				
13,800.00	8,681.00	17,172.42	11,925.00	95.70	99.87	-159.60	-5,503.30	1,269.50	3,489.23	3,411.81	77.42	45.068				
13,900.00	8,681.00	17,272.42	11,925.00	97.27	101.37	-159.60	-5,603.30	1,270.48	3,489.23	3,410.63	78.60	44.390				
14,000.00	8,681.00	17,372.42	11,925.00	98.84	102.87	-159.60	-5,703.29	1,271.46	3,489.23	3,409.44	79.79	43.730				
14,100.00	8,681.00	17,472.42	11,925.00	100.41	104.38	-159.60	-5,803.29	1,272.44	3,489.24	3,408.26	80.98	43.087				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,200.00	8,681.00	17,572.42	11,925.00	101.99	105.90	-159.60	-5,903.28	1,273.42	3,489.24	3,407.06	82.17	42.462		
14,300.00	8,681.00	17,672.42	11,925.00	103.57	107.41	-159.60	-6,003.28	1,274.40	3,489.24	3,405.87	83.37	41.853		
14,400.00	8,681.00	17,772.42	11,925.00	105.15	108.94	-159.60	-6,103.28	1,275.37	3,489.24	3,404.67	84.57	41.259		
14,500.00	8,681.00	17,872.42	11,925.00	106.73	110.46	-159.59	-6,203.27	1,276.35	3,489.25	3,403.47	85.77	40.680		
14,600.00	8,681.00	17,972.42	11,925.00	108.31	111.99	-159.59	-6,303.27	1,277.33	3,489.25	3,402.27	86.98	40.117		
14,700.00	8,681.00	18,072.42	11,925.00	109.90	113.52	-159.59	-6,403.26	1,278.31	3,489.25	3,401.06	88.19	39.567		
14,800.00	8,681.00	18,172.42	11,925.00	111.49	115.06	-159.59	-6,503.26	1,279.29	3,489.25	3,399.86	89.40	39.031		
14,900.00	8,681.00	18,272.42	11,925.00	113.08	116.60	-159.59	-6,603.25	1,280.27	3,489.25	3,398.65	90.61	38.509		
15,000.00	8,681.00	18,372.42	11,925.00	114.67	118.14	-159.59	-6,703.25	1,281.25	3,489.26	3,397.43	91.82	38.000		
15,100.00	8,681.00	18,472.42	11,925.00	116.27	119.69	-159.59	-6,803.24	1,282.23	3,489.26	3,396.22	93.04	37.504		
15,200.00	8,681.00	18,572.42	11,925.00	117.86	121.23	-159.59	-6,903.24	1,283.21	3,489.26	3,395.01	94.25	37.020		
15,300.00	8,681.00	18,672.42	11,925.00	119.46	122.78	-159.59	-7,003.23	1,284.19	3,489.26	3,393.79	95.47	36.548		
15,400.00	8,681.00	18,772.42	11,925.00	121.06	124.34	-159.59	-7,103.23	1,285.17	3,489.27	3,392.57	96.69	36.086		
15,500.00	8,681.00	18,872.42	11,925.00	122.66	125.89	-159.59	-7,203.22	1,286.14	3,489.27	3,391.35	97.91	35.636		
15,600.00	8,681.00	18,972.42	11,925.00	124.26	127.45	-159.59	-7,303.22	1,287.12	3,489.27	3,390.13	99.14	35.196		
15,700.00	8,681.00	19,072.42	11,925.00	125.86	129.01	-159.59	-7,403.21	1,288.10	3,489.27	3,388.91	100.37	34.766		
15,800.00	8,681.00	19,172.42	11,925.00	127.46	130.57	-159.59	-7,503.21	1,289.08	3,489.28	3,387.68	101.59	34.346		
15,900.00	8,681.00	19,272.42	11,925.00	129.07	132.14	-159.59	-7,603.20	1,290.06	3,489.28	3,386.46	102.82	33.935		
16,000.00	8,681.00	19,372.42	11,925.00	130.67	133.70	-159.59	-7,703.20	1,291.04	3,489.28	3,385.23	104.05	33.533		
16,100.00	8,681.00	19,472.42	11,925.00	132.28	135.27	-159.59	-7,803.19	1,292.02	3,489.28	3,384.00	105.29	33.141		
16,200.00	8,681.00	19,572.42	11,925.00	133.89	136.84	-159.59	-7,903.19	1,293.00	3,489.29	3,382.76	106.52	32.757		
16,300.00	8,681.00	19,672.42	11,925.00	135.50	138.42	-159.59	-8,003.18	1,293.98	3,489.29	3,381.53	107.76	32.381		
16,400.00	8,681.00	19,772.42	11,925.00	137.11	139.99	-159.59	-8,103.18	1,294.96	3,489.29	3,380.30	109.00	32.013		
16,500.00	8,681.00	19,872.42	11,925.00	138.72	141.57	-159.59	-8,203.17	1,295.94	3,489.29	3,379.06	110.23	31.653		
16,600.00	8,681.00	19,972.42	11,925.00	140.33	143.15	-159.59	-8,303.17	1,296.91	3,489.30	3,377.82	111.47	31.302		
16,700.00	8,681.00	20,072.42	11,925.00	141.95	144.73	-159.59	-8,403.17	1,297.89	3,489.30	3,376.59	112.71	30.958		
16,800.00	8,681.00	20,172.42	11,925.00	143.56	146.31	-159.59	-8,503.16	1,298.87	3,489.30	3,375.35	113.95	30.622		
16,900.00	8,681.00	20,272.42	11,925.00	145.17	147.89	-159.59	-8,603.16	1,299.85	3,489.30	3,374.11	115.19	30.292		
17,000.00	8,681.00	20,372.42	11,925.00	146.79	149.47	-159.59	-8,703.15	1,300.83	3,489.31	3,372.87	116.43	29.969		
17,100.00	8,681.00	20,472.42	11,925.00	148.41	151.06	-159.59	-8,803.15	1,301.81	3,489.31	3,371.63	117.68	29.652		
17,200.00	8,681.00	20,572.42	11,925.00	150.02	152.65	-159.59	-8,903.14	1,302.79	3,489.31	3,370.39	118.92	29.342		
17,300.00	8,681.00	20,672.42	11,925.00	151.64	154.23	-159.59	-9,003.14	1,303.77	3,489.31	3,369.15	120.17	29.037		
17,400.00	8,681.00	20,772.42	11,925.00	153.26	155.82	-159.59	-9,103.13	1,304.75	3,489.32	3,367.90	121.41	28.740		
17,500.00	8,681.00	20,872.42	11,925.00	154.88	157.42	-159.59	-9,203.13	1,305.73	3,489.32	3,366.66	122.66	28.448		
17,600.00	8,681.00	20,972.42	11,925.00	156.50	159.01	-159.59	-9,303.12	1,306.71	3,489.32	3,365.42	123.90	28.162		
17,700.00	8,681.00	21,072.42	11,925.00	158.12	160.60	-159.59	-9,403.12	1,307.69	3,489.32	3,364.17	125.15	27.881		
17,800.00	8,681.00	21,172.42	11,925.00	159.74	162.20	-159.59	-9,503.11	1,308.66	3,489.32	3,362.93	126.40	27.606		
17,900.00	8,681.00	21,272.42	11,925.00	161.36	163.79	-159.59	-9,603.11	1,309.64	3,489.33	3,361.68	127.65	27.336		
18,000.00	8,681.00	21,372.42	11,925.00	162.99	165.39	-159.59	-9,703.10	1,310.62	3,489.33	3,360.43	128.90	27.071		
18,100.00	8,681.00	21,472.42	11,925.00	164.61	166.99	-159.59	-9,803.10	1,311.60	3,489.33	3,359.19	130.15	26.811		
18,200.00	8,681.00	21,572.42	11,925.00	166.23	168.58	-159.59	-9,903.09	1,312.58	3,489.33	3,357.94	131.40	26.556		
18,300.00	8,681.00	21,672.42	11,925.00	167.86	170.18	-159.59	-10,003.09	1,313.56	3,489.34	3,356.69	132.65	26.305		
18,400.00	8,681.00	21,772.42	11,925.00	169.48	171.79	-159.59	-10,103.08	1,314.54	3,489.34	3,355.44	133.90	26.060		
18,500.00	8,681.00	21,872.42	11,925.00	171.11	173.39	-159.59	-10,203.08	1,315.52	3,489.34	3,354.19	135.15	25.819		
18,600.00	8,681.00	21,972.42	11,925.00	172.73	174.99	-159.59	-10,303.07	1,316.50	3,489.34	3,352.94	136.40	25.582		
18,681.03	8,681.00	22,053.45	11,925.00	174.05	176.29	-159.59	-10,384.10	1,317.29	3,489.35	3,351.93	137.41	25.393 SF		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	89.42	9.52	939.80	940.19					
100.00	100.00	74.80	74.80	0.13	0.09	89.42	9.52	939.80	939.85	939.69	0.16	5,998.478		
200.00	200.00	174.80	174.80	0.48	0.39	89.42	9.52	939.80	939.85	939.22	0.62	1,506.668		
300.00	300.00	274.80	274.80	0.84	0.75	89.42	9.52	939.80	939.85	938.72	1.13	832.257		
400.00	400.00	374.80	374.80	1.20	1.11	89.42	9.52	939.80	939.85	938.21	1.64	574.595		
500.00	500.00	474.80	474.80	1.56	1.47	89.42	9.52	939.80	939.85	937.71	2.14	438.703		
600.00	600.00	574.80	574.80	1.92	1.83	89.42	9.52	939.80	939.85	937.20	2.65	354.780		
700.00	700.00	674.80	674.80	2.28	2.19	89.42	9.52	939.80	939.85	936.69	3.16	297.803		
800.00	800.00	774.80	774.80	2.63	2.54	89.42	9.52	939.80	939.85	936.19	3.66	256.593		
900.00	900.00	874.80	874.80	2.99	2.90	89.42	9.52	939.80	939.85	935.68	4.17	225.400		
1,000.00	1,000.00	974.80	974.80	3.35	3.26	89.42	9.52	939.80	939.85	935.17	4.68	200.969		
1,100.00	1,100.00	1,074.80	1,074.80	3.71	3.62	89.42	9.52	939.80	939.85	934.66	5.18	181.315		
1,200.00	1,200.00	1,174.80	1,174.80	4.07	3.98	89.42	9.52	939.80	939.85	934.16	5.69	165.163		
1,300.00	1,300.00	1,274.80	1,274.80	4.43	4.34	89.42	9.52	939.80	939.85	933.65	6.20	151.653		
1,400.00	1,400.00	1,374.80	1,374.80	4.79	4.70	89.42	9.52	939.80	939.85	933.14	6.70	140.186		
1,500.00	1,500.00	1,474.80	1,474.80	5.14	5.05	89.42	9.52	939.80	939.85	932.64	7.21	130.331		
1,600.00	1,600.00	1,574.80	1,574.80	5.50	5.41	89.42	9.52	939.80	939.85	932.13	7.72	121.771		
1,700.00	1,700.00	1,674.80	1,674.80	5.86	5.77	89.42	9.52	939.80	939.85	931.62	8.23	114.266		
1,800.00	1,800.00	1,774.80	1,774.80	6.22	6.13	89.42	9.52	939.80	939.85	931.12	8.73	107.632		
1,900.00	1,900.00	1,874.80	1,874.80	6.58	6.49	89.42	9.52	939.80	939.85	930.61	9.24	101.726		
2,000.00	2,000.00	1,974.80	1,974.80	6.94	6.85	89.42	9.52	939.80	939.85	930.10	9.75	96.435		
2,100.00	2,100.00	2,074.80	2,074.80	7.29	7.20	89.42	9.52	939.80	939.85	929.60	10.25	91.667		
2,200.00	2,200.00	2,174.80	2,174.80	7.65	7.56	89.42	9.52	939.80	939.85	929.09	10.76	87.348		
2,300.00	2,300.00	2,274.80	2,274.80	8.01	7.92	89.42	9.52	939.80	939.85	928.58	11.27	83.418		
2,400.00	2,400.00	2,374.80	2,374.80	8.37	8.28	89.42	9.52	939.80	939.85	928.07	11.77	79.826		
2,500.00	2,500.00	2,474.80	2,474.80	8.73	8.64	89.42	9.52	939.80	939.85	927.57	12.28	76.531		
2,600.00	2,600.00	2,574.80	2,574.80	9.09	9.00	89.42	9.52	939.80	939.85	927.06	12.79	73.497		
2,700.00	2,700.00	2,674.80	2,674.80	9.45	9.36	89.42	9.52	939.80	939.85	926.55	13.29	70.694		
2,800.00	2,800.00	2,774.80	2,774.80	9.80	9.71	89.42	9.52	939.80	939.85	926.05	13.80	68.098		
2,900.00	2,900.00	2,874.80	2,874.80	10.16	10.07	89.42	9.52	939.80	939.85	925.54	14.31	65.685		
3,000.00	3,000.00	2,974.80	2,974.80	10.52	10.43	89.42	9.52	939.80	939.85	925.03	14.82	63.437		
3,100.00	3,099.99	3,074.79	3,074.79	10.86	10.79	-90.30	9.52	939.80	939.85	924.55	15.31	61.392		
3,200.00	3,199.91	3,174.71	3,174.71	11.18	11.15	-90.54	9.52	939.80	939.88	924.09	15.79	59.523		
3,300.00	3,299.69	3,298.77	3,298.76	11.51	11.58	-91.05	9.45	938.52	939.00	922.68	16.32	57.526		
3,400.00	3,399.27	3,430.61	3,430.47	11.84	12.03	-91.84	9.16	932.85	934.91	918.06	16.85	55.481		
3,500.00	3,498.57	3,561.59	3,561.05	12.17	12.49	-92.90	8.62	922.72	927.59	910.23	17.36	53.423		
3,533.06	3,531.33	3,604.64	3,603.88	12.28	12.63	-93.30	8.40	918.42	924.50	906.97	17.53	52.741		
3,600.00	3,597.62	3,691.45	3,690.10	12.50	12.94	-94.06	7.86	908.27	917.18	899.33	17.86	51.356		
3,700.00	3,696.65	3,820.22	3,817.50	12.85	13.40	-95.23	6.88	889.63	903.67	885.33	18.34	49.281		
3,800.00	3,795.68	3,947.64	3,942.87	13.19	13.86	-96.44	5.69	866.97	887.10	868.30	18.80	47.192		
3,900.00	3,894.70	4,048.22	4,041.46	13.54	14.24	-97.44	4.65	847.08	868.79	849.52	19.28	45.071		
4,000.00	3,993.73	4,145.41	4,136.72	13.90	14.61	-98.45	3.64	827.84	850.73	830.96	19.76	43.047		
4,100.00	4,092.76	4,242.60	4,231.98	14.26	14.98	-99.50	2.63	808.60	832.93	812.68	20.25	41.124		
4,149.39	4,141.67	4,290.60	4,279.03	14.44	15.17	-100.04	2.13	799.10	824.25	803.75	20.50	40.211		
4,200.00	4,191.83	4,339.83	4,327.28	14.62	15.36	-100.44	1.62	789.36	815.37	794.62	20.75	39.297		
4,300.00	4,291.19	4,437.32	4,422.84	14.98	15.75	-101.14	0.60	770.06	797.65	776.41	21.24	37.546		
4,400.00	4,390.81	4,535.04	4,518.62	15.34	16.14	-101.69	-0.41	750.71	779.63	757.89	21.74	35.861		
4,500.00	4,490.62	4,632.92	4,614.57	15.69	16.54	-102.09	-1.43	731.33	761.22	738.98	22.23	34.237		
4,600.00	4,590.56	4,730.91	4,710.61	16.04	16.94	-102.31	-2.45	711.94	742.35	719.62	22.73	32.666		
4,682.45	4,673.00	4,811.72	4,789.82	16.32	17.27	77.29	-3.29	695.94	726.41	703.28	23.13	31.405		
4,700.00	4,690.55	4,828.93	4,806.68	16.38	17.35	77.25	-3.47	692.53	722.98	699.76	23.22	31.140		
4,800.00	4,790.55	4,926.94	4,902.75	16.73	17.75	76.97	-4.49	673.13	703.44	679.73	23.71	29.668		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 704H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
4,900.00	4,890.55	5,024.96	4,998.82	17.08	18.17	76.68	-5.50	653.73	683.91	659.71	24.21	28.255				
5,000.00	4,990.55	5,122.97	5,094.89	17.43	18.58	76.38	-6.52	634.32	664.41	639.70	24.70	26.898				
5,100.00	5,090.55	5,220.99	5,190.96	17.78	19.00	76.05	-7.54	614.92	644.92	619.72	25.20	25.593				
5,200.00	5,190.55	5,319.00	5,287.03	18.13	19.42	75.71	-8.56	595.52	625.45	599.75	25.70	24.339				
5,300.00	5,290.55	5,417.02	5,383.10	18.48	19.84	75.34	-9.58	576.11	606.01	579.81	26.20	23.132				
5,400.00	5,390.55	5,515.04	5,479.17	18.83	20.26	74.95	-10.60	556.71	586.59	559.89	26.70	21.971				
5,500.00	5,490.55	5,613.05	5,575.24	19.19	20.69	74.53	-11.62	537.31	567.20	540.00	27.20	20.852				
5,600.00	5,590.55	5,711.07	5,671.31	19.54	21.12	74.09	-12.64	517.91	547.85	520.14	27.70	19.775				
5,700.00	5,690.55	5,809.08	5,767.38	19.89	21.55	73.61	-13.66	498.50	528.52	500.31	28.21	18.736				
5,800.00	5,790.55	5,907.10	5,863.45	20.24	21.98	73.09	-14.68	479.10	509.24	480.52	28.72	17.734				
5,900.00	5,890.55	6,005.11	5,959.52	20.59	22.42	72.54	-15.70	459.70	489.99	460.77	29.22	16.767				
6,000.00	5,990.55	6,103.13	6,055.59	20.95	22.85	71.94	-16.71	440.29	470.80	441.07	29.73	15.834				
6,100.00	6,090.55	6,201.14	6,151.66	21.30	23.29	71.28	-17.73	420.89	451.66	421.41	30.25	14.933				
6,200.00	6,190.55	6,299.16	6,247.73	21.65	23.73	70.57	-18.75	401.49	432.58	401.82	30.76	14.063				
6,300.00	6,290.55	6,397.18	6,343.81	22.00	24.17	69.80	-19.77	382.08	413.57	382.30	31.28	13.223				
6,400.00	6,390.55	6,495.19	6,439.88	22.36	24.61	68.95	-20.79	362.68	394.65	362.85	31.80	12.412				
6,500.00	6,490.55	6,593.21	6,535.95	22.71	25.05	68.01	-21.81	343.28	375.81	343.49	32.32	11.628				
6,600.00	6,590.55	6,691.22	6,632.02	23.06	25.49	66.98	-22.83	323.87	357.08	324.24	32.84	10.872				
6,700.00	6,690.55	6,789.24	6,728.09	23.42	25.94	65.84	-23.85	304.47	338.48	305.10	33.38	10.141				
6,800.00	6,790.55	6,881.26	6,818.43	23.77	26.35	64.69	-24.76	287.01	320.80	286.83	33.96	9.445				
6,900.00	6,890.55	6,972.93	6,908.81	24.13	26.75	63.60	-25.57	271.76	305.41	270.86	34.55	8.840				
7,000.00	6,990.55	7,065.29	7,000.23	24.48	27.13	62.56	-26.26	258.59	292.33	257.21	35.12	8.324				
7,100.00	7,090.55	7,158.24	7,092.52	24.83	27.50	61.63	-26.84	247.57	281.54	245.87	35.67	7.893				
7,200.00	7,190.55	7,251.68	7,185.54	25.19	27.86	60.83	-27.30	238.75	273.02	236.82	36.20	7.541				
7,300.00	7,290.55	7,345.50	7,279.13	25.54	28.21	60.21	-27.64	232.18	266.75	230.03	36.72	7.265				
7,400.00	7,390.55	7,439.59	7,373.11	25.90	28.54	59.79	-27.87	227.91	262.69	225.48	37.20	7.061				
7,500.00	7,490.55	7,533.83	7,467.33	26.25	28.86	59.59	-27.97	225.94	260.83	223.16	37.67	6.924				
7,551.01	7,541.56	7,582.85	7,516.36	26.43	29.02	59.58	-27.98	225.80	260.70	222.79	37.91	6.878				
7,600.00	7,590.55	7,631.85	7,565.35	26.61	29.18	59.58	-27.98	225.80	260.70	222.55	38.15	6.834				
7,700.00	7,690.55	7,731.85	7,665.35	26.96	29.50	59.58	-27.98	225.80	260.70	222.06	38.64	6.747				
7,800.00	7,790.55	7,831.85	7,765.35	27.32	29.82	59.58	-27.98	225.80	260.70	221.57	39.13	6.662				
7,900.00	7,890.55	7,931.85	7,865.35	27.67	30.15	59.58	-27.98	225.80	260.70	221.08	39.62	6.580				
8,000.00	7,990.55	8,031.85	7,965.35	28.03	30.48	59.58	-27.98	225.80	260.70	220.58	40.12	6.499				
8,100.00	8,090.55	8,131.85	8,065.35	28.38	30.80	59.58	-27.98	225.80	260.70	220.09	40.61	6.420				
8,117.49	8,108.04	8,149.34	8,082.84	28.44	30.86	59.58	-27.98	225.80	260.70	220.01	40.69	6.406 CC, ES				
8,150.00	8,140.53	8,181.83	8,115.33	28.56	30.96	-120.00	-27.98	225.80	261.16	220.30	40.86	6.392 SF				
8,200.00	8,190.27	8,231.56	8,165.07	28.73	31.13	-120.72	-27.98	225.80	263.70	222.59	41.12	6.413				
8,250.00	8,239.37	8,280.67	8,214.17	28.91	31.29	-121.99	-27.98	225.80	268.62	227.23	41.40	6.489				
8,300.00	8,287.48	8,328.78	8,262.28	29.09	31.45	-123.68	-27.98	225.80	276.19	234.50	41.69	6.625				
8,350.00	8,334.22	8,375.52	8,309.02	29.27	31.60	-125.63	-27.98	225.80	286.73	244.73	41.99	6.828				
8,400.00	8,379.24	8,420.54	8,354.04	29.46	31.75	-127.66	-27.98	225.80	300.57	258.27	42.30	7.105				
8,450.00	8,422.20	8,463.50	8,397.00	29.66	31.89	-129.60	-27.98	225.80	318.00	275.39	42.61	7.463				
8,500.00	8,462.76	8,504.06	8,437.56	29.86	32.02	-131.29	-27.98	225.80	339.17	296.27	42.90	7.905				
8,550.00	8,500.63	8,541.93	8,475.43	30.07	32.15	-132.61	-27.98	225.80	364.14	320.96	43.18	8.433				
8,600.00	8,535.51	8,576.80	8,510.31	30.28	32.26	-133.42	-27.98	225.80	392.84	349.41	43.43	9.044				
8,650.00	8,567.13	8,608.43	8,541.93	30.51	32.37	-133.61	-27.98	225.80	425.08	381.42	43.66	9.736				
8,700.00	8,595.26	8,636.56	8,570.06	30.75	32.46	-133.05	-27.98	225.80	460.60	416.73	43.86	10.501				
8,750.00	8,619.68	8,660.98	8,594.48	30.99	32.54	-131.53	-27.98	225.80	499.05	455.02	44.03	11.335				
8,800.00	8,640.21	8,681.51	8,615.01	31.25	32.61	-128.80	-27.98	225.80	540.08	495.91	44.17	12.227				
8,850.00	8,656.69	8,697.99	8,631.49	31.52	32.66	-124.43	-27.98	225.80	583.27	538.98	44.28	13.171				
8,900.00	8,668.99	8,710.29	8,643.79	31.80	32.70	-117.83	-27.98	225.80	628.21	583.84	44.37	14.158				
8,950.00	8,677.03	8,718.33	8,651.83	32.09	32.73	-108.28	-27.98	225.80	674.47	630.04	44.43	15.179				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 704H - OH - Plan #2		Offset Site Error:		0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance											
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning					
9,000.00	8,680.73	8,722.03	8,655.53	32.38	32.74	-95.29	-27.98	225.80	721.63	677.15	44.47	16.226						
9,017.49	8,681.00	8,722.30	8,655.80	32.49	32.74	-90.00	-27.98	225.80	738.25	693.77	44.48	16.596						
9,100.00	8,681.00	8,722.30	8,655.80	33.00	32.74	-90.00	-27.98	225.80	817.19	772.67	44.52	18.355						
9,200.00	8,681.00	8,722.30	8,655.80	33.70	32.74	-90.00	-27.98	225.80	913.71	869.15	44.55	20.507						
9,300.00	8,681.00	8,722.30	8,655.80	34.46	32.74	-90.00	-27.98	225.80	1,010.90	966.32	44.58	22.675						
9,400.00	8,681.00	8,722.30	8,655.80	35.28	32.74	-90.00	-27.98	225.80	1,108.59	1,063.99	44.61	24.852						
9,500.00	8,681.00	8,722.30	8,655.80	36.15	32.74	-90.00	-27.98	225.80	1,206.66	1,162.04	44.63	27.038						
9,600.00	8,681.00	8,722.30	8,655.80	37.08	32.74	-90.00	-27.98	225.80	1,305.03	1,260.38	44.65	29.229						
9,700.00	8,681.00	8,722.30	8,655.80	38.06	32.74	-90.00	-27.98	225.80	1,403.62	1,358.96	44.67	31.425						
9,800.00	8,681.00	8,722.30	8,655.80	39.08	32.74	-90.00	-27.98	225.80	1,502.40	1,457.72	44.68	33.623						
9,900.00	8,681.00	8,722.30	8,655.80	40.15	32.74	-90.00	-27.98	225.80	1,601.34	1,556.63	44.70	35.824						
10,000.00	8,681.00	8,722.30	8,655.80	41.25	32.74	-90.00	-27.98	225.80	1,700.39	1,655.67	44.72	38.025						
10,100.00	8,681.00	8,722.30	8,655.80	42.39	32.74	-90.00	-27.98	225.80	1,799.55	1,754.82	44.73	40.227						
10,200.00	8,681.00	8,722.30	8,655.80	43.56	32.74	-90.00	-27.98	225.80	1,898.80	1,854.05	44.75	42.430						
10,300.00	8,681.00	8,722.30	8,655.80	44.77	32.74	-90.00	-27.98	225.80	1,998.13	1,953.36	44.77	44.632						
10,400.00	8,681.00	8,722.30	8,655.80	46.00	32.74	-90.00	-27.98	225.80	2,097.52	2,052.73	44.79	46.834						
10,500.00	8,681.00	8,722.30	8,655.80	47.25	32.74	-90.00	-27.98	225.80	2,196.96	2,152.16	44.80	49.035						
10,600.00	8,681.00	8,722.30	8,655.80	48.53	32.74	-90.00	-27.98	225.80	2,296.45	2,251.63	44.82	51.234						
10,700.00	8,681.00	8,722.30	8,655.80	49.83	32.74	-90.00	-27.98	225.80	2,395.99	2,351.15	44.84	53.433						
10,800.00	8,681.00	8,722.30	8,655.80	51.16	32.74	-90.00	-27.98	225.80	2,495.56	2,450.70	44.86	55.630						
10,900.00	8,681.00	8,722.30	8,655.80	52.50	32.74	-90.00	-27.98	225.80	2,595.16	2,550.28	44.88	57.825						
11,000.00	8,681.00	8,722.30	8,655.80	53.86	32.74	-90.00	-27.98	225.80	2,694.80	2,649.90	44.90	60.018						
11,100.00	8,681.00	8,722.30	8,655.80	55.23	32.74	-90.00	-27.98	225.80	2,794.46	2,749.54	44.92	62.208						
11,200.00	8,681.00	8,722.30	8,655.80	56.62	32.74	-90.00	-27.98	225.80	2,894.14	2,849.20	44.94	64.397						
11,300.00	8,681.00	8,722.30	8,655.80	58.02	32.74	-90.00	-27.98	225.80	2,993.84	2,948.88	44.96	66.583						
11,400.00	8,681.00	8,722.30	8,655.80	59.44	32.74	-90.00	-27.98	225.80	3,093.57	3,048.58	44.99	68.767						
11,500.00	8,681.00	8,722.30	8,655.80	60.86	32.74	-90.00	-27.98	225.80	3,193.31	3,148.30	45.01	70.948						
11,600.00	8,681.00	8,722.30	8,655.80	62.30	32.74	-90.00	-27.98	225.80	3,293.07	3,248.03	45.03	73.126						
11,700.00	8,681.00	8,722.30	8,655.80	63.75	32.74	-90.00	-27.98	225.80	3,392.84	3,347.78	45.06	75.301						
11,800.00	8,681.00	15,414.86	12,109.00	65.21	72.30	-176.25	-3,513.09	259.98	3,460.61	3,411.96	48.66	71.124						
11,900.00	8,681.00	15,514.86	12,109.00	66.68	73.62	-176.25	-3,613.08	260.97	3,460.61	3,411.08	49.53	69.866						
12,000.00	8,681.00	15,614.86	12,109.00	68.15	74.96	-176.25	-3,713.08	261.95	3,460.61	3,410.20	50.42	68.639						
12,100.00	8,681.00	15,714.86	12,109.00	69.63	76.30	-176.25	-3,813.07	262.93	3,460.61	3,409.30	51.31	67.443						
12,200.00	8,681.00	15,814.86	12,109.00	71.13	77.66	-176.25	-3,913.07	263.91	3,460.61	3,408.40	52.21	66.276						
12,300.00	8,681.00	15,914.86	12,109.00	72.62	79.03	-176.25	-4,013.06	264.89	3,460.61	3,407.49	53.13	65.140						
12,400.00	8,681.00	16,014.86	12,109.00	74.13	80.41	-176.25	-4,113.06	265.87	3,460.62	3,406.57	54.05	64.032						
12,500.00	8,681.00	16,114.86	12,109.00	75.64	81.80	-176.25	-4,213.06	266.85	3,460.62	3,405.64	54.97	62.951						
12,600.00	8,681.00	16,214.86	12,109.00	77.15	83.20	-176.25	-4,313.05	267.83	3,460.62	3,404.71	55.91	61.900						
12,700.00	8,681.00	16,314.86	12,109.00	78.68	84.61	-176.25	-4,413.05	268.81	3,460.62	3,403.77	56.85	60.876						
12,800.00	8,681.00	16,414.86	12,109.00	80.20	86.03	-176.25	-4,513.04	269.79	3,460.62	3,402.82	57.79	59.879						
12,900.00	8,681.00	16,514.86	12,109.00	81.74	87.46	-176.25	-4,613.04	270.77	3,460.62	3,401.87	58.75	58.908						
13,000.00	8,681.00	16,614.86	12,109.00	83.27	88.89	-176.25	-4,713.03	271.75	3,460.62	3,400.91	59.70	57.963						
13,100.00	8,681.00	16,714.86	12,109.00	84.81	90.33	-176.25	-4,813.03	272.74	3,460.62	3,399.95	60.67	57.042						
13,200.00	8,681.00	16,814.86	12,109.00	86.36	91.78	-176.25	-4,913.02	273.72	3,460.62	3,398.98	61.64	56.146						
13,300.00	8,681.00	16,914.86	12,109.00	87.91	93.24	-176.25	-5,013.02	274.70	3,460.62	3,398.01	62.61	55.274						
13,400.00	8,681.00	17,014.86	12,109.00	89.46	94.70	-176.25	-5,113.01	275.68	3,460.62	3,397.03	63.59	54.424						
13,500.00	8,681.00	17,114.86	12,109.00	91.01	96.17	-176.25	-5,213.01	276.66	3,460.62	3,396.05	64.57	53.596						
13,600.00	8,681.00	17,214.86	12,109.00	92.57	97.64	-176.25	-5,313.00	277.64	3,460.62	3,395.07	65.56	52.789						
13,700.00	8,681.00	17,314.86	12,109.00	94.13	99.12	-176.25	-5,413.00	278.62	3,460.62	3,394.08	66.55	52.003						
13,800.00	8,681.00	17,414.86	12,109.00	95.70	100.61	-176.25	-5,512.99	279.60	3,460.62	3,393.08	67.54	51.237						
13,900.00	8,681.00	17,514.86	12,109.00	97.27	102.10	-176.25	-5,612.99	280.58	3,460.62	3,392.08	68.54	50.491						
14,000.00	8,681.00	17,614.86	12,109.00	98.84	103.59	-176.25	-5,712.98	281.56	3,460.62	3,391.08	69.54	49.764						

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 704H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,100.00	8,681.00	17,714.86	12,109.00	100.41	105.09	-176.25	-5,812.98	282.54	3,460.63	3,390.08	70.55	49.055				
14,200.00	8,681.00	17,814.86	12,109.00	101.99	106.59	-176.25	-5,912.97	283.52	3,460.63	3,389.07	71.56	48.363				
14,300.00	8,681.00	17,914.86	12,109.00	103.57	108.10	-176.25	-6,012.97	284.51	3,460.63	3,388.06	72.57	47.689				
14,400.00	8,681.00	18,014.86	12,109.00	105.15	109.61	-176.25	-6,112.96	285.49	3,460.63	3,387.04	73.58	47.031				
14,500.00	8,681.00	18,114.86	12,109.00	106.73	111.13	-176.25	-6,212.96	286.47	3,460.63	3,386.03	74.60	46.389				
14,600.00	8,681.00	18,214.86	12,109.00	108.31	112.65	-176.25	-6,312.95	287.45	3,460.63	3,385.01	75.62	45.762				
14,700.00	8,681.00	18,314.86	12,109.00	109.90	114.17	-176.25	-6,412.95	288.43	3,460.63	3,383.98	76.65	45.151				
14,800.00	8,681.00	18,414.86	12,109.00	111.49	115.70	-176.25	-6,512.94	289.41	3,460.63	3,382.96	77.67	44.555				
14,900.00	8,681.00	18,514.86	12,109.00	113.08	117.23	-176.24	-6,612.94	290.39	3,460.63	3,381.93	78.70	43.972				
15,000.00	8,681.00	18,614.86	12,109.00	114.67	118.77	-176.24	-6,712.94	291.37	3,460.63	3,380.90	79.73	43.404				
15,100.00	8,681.00	18,714.86	12,109.00	116.27	120.30	-176.24	-6,812.93	292.35	3,460.63	3,379.87	80.76	42.849				
15,200.00	8,681.00	18,814.86	12,109.00	117.86	121.84	-176.24	-6,912.93	293.33	3,460.63	3,378.83	81.80	42.306				
15,300.00	8,681.00	18,914.86	12,109.00	119.46	123.39	-176.24	-7,012.92	294.31	3,460.63	3,377.79	82.84	41.776				
15,400.00	8,681.00	19,014.86	12,109.00	121.06	124.93	-176.24	-7,112.92	295.29	3,460.63	3,376.76	83.88	41.258				
15,500.00	8,681.00	19,114.86	12,109.00	122.66	126.48	-176.24	-7,212.91	296.28	3,460.63	3,375.71	84.92	40.752				
15,600.00	8,681.00	19,214.86	12,109.00	124.26	128.03	-176.24	-7,312.91	297.26	3,460.63	3,374.67	85.96	40.258				
15,700.00	8,681.00	19,314.86	12,109.00	125.86	129.58	-176.24	-7,412.90	298.24	3,460.63	3,373.63	87.01	39.774				
15,800.00	8,681.00	19,414.86	12,109.00	127.46	131.14	-176.24	-7,512.90	299.22	3,460.63	3,372.58	88.05	39.301				
15,900.00	8,681.00	19,514.86	12,109.00	129.07	132.70	-176.24	-7,612.89	300.20	3,460.64	3,371.53	89.10	38.839				
16,000.00	8,681.00	19,614.86	12,109.00	130.67	134.26	-176.24	-7,712.89	301.18	3,460.64	3,370.48	90.15	38.386				
16,100.00	8,681.00	19,714.86	12,109.00	132.28	135.82	-176.24	-7,812.88	302.16	3,460.64	3,369.43	91.21	37.943				
16,200.00	8,681.00	19,814.86	12,109.00	133.89	137.39	-176.24	-7,912.88	303.14	3,460.64	3,368.38	92.26	37.510				
16,300.00	8,681.00	19,914.86	12,109.00	135.50	138.95	-176.24	-8,012.87	304.12	3,460.64	3,367.33	93.31	37.087				
16,400.00	8,681.00	20,014.86	12,109.00	137.11	140.52	-176.24	-8,112.87	305.10	3,460.64	3,366.27	94.37	36.672				
16,500.00	8,681.00	20,114.86	12,109.00	138.72	142.09	-176.24	-8,212.86	306.08	3,460.64	3,365.21	95.43	36.265				
16,600.00	8,681.00	20,214.86	12,109.00	140.33	143.66	-176.24	-8,312.86	307.06	3,460.64	3,364.16	96.48	35.868				
16,700.00	8,681.00	20,314.86	12,109.00	141.95	145.24	-176.24	-8,412.85	308.05	3,460.64	3,363.10	97.54	35.478				
16,800.00	8,681.00	20,414.86	12,109.00	143.56	146.81	-176.24	-8,512.85	309.03	3,460.64	3,362.04	98.60	35.096				
16,900.00	8,681.00	20,514.86	12,109.00	145.17	148.39	-176.24	-8,612.84	310.01	3,460.64	3,360.97	99.67	34.722				
17,000.00	8,681.00	20,614.86	12,109.00	146.79	149.97	-176.24	-8,712.84	310.99	3,460.64	3,359.91	100.73	34.356				
17,100.00	8,681.00	20,714.86	12,109.00	148.41	151.55	-176.24	-8,812.83	311.97	3,460.64	3,358.85	101.79	33.997				
17,200.00	8,681.00	20,814.86	12,109.00	150.02	153.13	-176.24	-8,912.83	312.95	3,460.64	3,357.78	102.86	33.644				
17,300.00	8,681.00	20,914.86	12,109.00	151.64	154.72	-176.24	-9,012.82	313.93	3,460.64	3,356.72	103.93	33.299				
17,400.00	8,681.00	21,014.86	12,109.00	153.26	156.30	-176.24	-9,112.82	314.91	3,460.64	3,355.65	104.99	32.960				
17,500.00	8,681.00	21,114.86	12,109.00	154.88	157.89	-176.24	-9,212.81	315.89	3,460.64	3,354.58	106.06	32.628				
17,600.00	8,681.00	21,214.86	12,109.00	156.50	159.47	-176.24	-9,312.81	316.87	3,460.64	3,353.51	107.13	32.303				
17,700.00	8,681.00	21,314.86	12,109.00	158.12	161.06	-176.24	-9,412.81	317.85	3,460.65	3,352.44	108.20	31.983				
17,800.00	8,681.00	21,414.86	12,109.00	159.74	162.65	-176.24	-9,512.80	318.83	3,460.65	3,351.37	109.27	31.669				
17,900.00	8,681.00	21,514.86	12,109.00	161.36	164.24	-176.24	-9,612.80	319.82	3,460.65	3,350.30	110.35	31.362				
18,000.00	8,681.00	21,614.86	12,109.00	162.99	165.84	-176.24	-9,712.79	320.80	3,460.65	3,349.23	111.42	31.060				
18,100.00	8,681.00	21,714.86	12,109.00	164.61	167.43	-176.24	-9,812.79	321.78	3,460.65	3,348.15	112.49	30.763				
18,200.00	8,681.00	21,814.86	12,109.00	166.23	169.03	-176.24	-9,912.78	322.76	3,460.65	3,347.08	113.57	30.472				
18,300.00	8,681.00	21,914.86	12,109.00	167.86	170.62	-176.24	-10,012.78	323.74	3,460.65	3,346.00	114.64	30.186				
18,400.00	8,681.00	22,014.86	12,109.00	169.48	172.22	-176.24	-10,112.77	324.72	3,460.65	3,344.93	115.72	29.905				
18,500.00	8,681.00	22,114.86	12,109.00	171.11	173.82	-176.24	-10,212.77	325.70	3,460.65	3,343.85	116.80	29.630				
18,600.00	8,681.00	22,214.86	12,109.00	172.73	175.41	-176.24	-10,312.76	326.68	3,460.65	3,342.78	117.88	29.359				
18,681.03	8,681.00	22,295.88	12,109.00	174.05	176.71	-176.24	-10,393.78	327.48	3,460.65	3,341.90	118.75	29.143				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design		Tatanka Fed Com - Tatanka Fed Com 705H - OH - Plan #2											Offset Site Error:	0.00 usft
Survey Program:		0-OWSG (Rev2) MWD											Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)			
0.00	0.00	0.00	0.00	0.00	0.00	89.42	10.28	1,014.78	1,015.19					
100.00	100.00	73.00	73.00	0.13	0.09	89.42	10.28	1,014.78	1,014.83	1,014.68	0.16	6,533.019		
200.00	200.00	173.00	173.00	0.48	0.39	89.42	10.28	1,014.78	1,014.83	1,014.21	0.62	1,637.509		
300.00	300.00	273.00	273.00	0.84	0.75	89.42	10.28	1,014.78	1,014.83	1,013.71	1.12	902.081		
400.00	400.00	373.00	373.00	1.20	1.10	89.42	10.28	1,014.78	1,014.83	1,013.20	1.63	622.101		
500.00	500.00	473.00	473.00	1.56	1.46	89.42	10.28	1,014.78	1,014.83	1,012.69	2.14	474.684		
600.00	600.00	573.00	573.00	1.92	1.82	89.42	10.28	1,014.78	1,014.83	1,012.19	2.64	383.729		
700.00	700.00	673.00	673.00	2.28	2.18	89.42	10.28	1,014.78	1,014.83	1,011.68	3.15	322.019		
800.00	800.00	773.00	773.00	2.63	2.54	89.42	10.28	1,014.78	1,014.83	1,011.17	3.66	277.404		
900.00	900.00	873.00	873.00	2.99	2.90	89.42	10.28	1,014.78	1,014.83	1,010.67	4.17	243.645		
1,000.00	1,000.00	973.00	973.00	3.35	3.25	89.42	10.28	1,014.78	1,014.83	1,010.16	4.67	217.211		
1,100.00	1,100.00	1,073.00	1,073.00	3.71	3.61	89.42	10.28	1,014.78	1,014.83	1,009.65	5.18	195.951		
1,200.00	1,200.00	1,173.00	1,173.00	4.07	3.97	89.42	10.28	1,014.78	1,014.83	1,009.15	5.69	178.482		
1,300.00	1,300.00	1,273.00	1,273.00	4.43	4.33	89.42	10.28	1,014.78	1,014.83	1,008.64	6.19	163.872		
1,400.00	1,400.00	1,373.00	1,373.00	4.79	4.69	89.42	10.28	1,014.78	1,014.83	1,008.13	6.70	151.473		
1,500.00	1,500.00	1,473.00	1,473.00	5.14	5.05	89.42	10.28	1,014.78	1,014.83	1,007.63	7.21	140.818		
1,600.00	1,600.00	1,573.00	1,573.00	5.50	5.41	89.42	10.28	1,014.78	1,014.83	1,007.12	7.71	131.564		
1,700.00	1,700.00	1,673.00	1,673.00	5.86	5.76	89.42	10.28	1,014.78	1,014.83	1,006.61	8.22	123.450		
1,800.00	1,800.00	1,773.00	1,773.00	6.22	6.12	89.42	10.28	1,014.78	1,014.83	1,006.10	8.73	116.280		
1,900.00	1,900.00	1,873.00	1,873.00	6.58	6.48	89.42	10.28	1,014.78	1,014.83	1,005.60	9.23	109.896		
2,000.00	2,000.00	1,973.00	1,973.00	6.94	6.84	89.42	10.28	1,014.78	1,014.83	1,005.09	9.74	104.177		
2,100.00	2,100.00	2,073.00	2,073.00	7.29	7.20	89.42	10.28	1,014.78	1,014.83	1,004.58	10.25	99.024		
2,200.00	2,200.00	2,173.00	2,173.00	7.65	7.56	89.42	10.28	1,014.78	1,014.83	1,004.08	10.76	94.357		
2,300.00	2,300.00	2,273.00	2,273.00	8.01	7.92	89.42	10.28	1,014.78	1,014.83	1,003.57	11.26	90.109		
2,400.00	2,400.00	2,373.00	2,373.00	8.37	8.27	89.42	10.28	1,014.78	1,014.83	1,003.06	11.77	86.228		
2,500.00	2,500.00	2,473.00	2,473.00	8.73	8.63	89.42	10.28	1,014.78	1,014.83	1,002.56	12.28	82.667		
2,600.00	2,600.00	2,573.00	2,573.00	9.09	8.99	89.42	10.28	1,014.78	1,014.83	1,002.05	12.78	79.389		
2,700.00	2,700.00	2,673.00	2,673.00	9.45	9.35	89.42	10.28	1,014.78	1,014.83	1,001.54	13.29	76.361		
2,800.00	2,800.00	2,773.00	2,773.00	9.80	9.71	89.42	10.28	1,014.78	1,014.83	1,001.04	13.80	73.555		
2,900.00	2,900.00	2,873.00	2,873.00	10.16	10.07	89.42	10.28	1,014.78	1,014.83	1,000.53	14.30	70.948		
3,000.00	3,000.00	2,973.00	2,973.00	10.52	10.42	89.42	10.28	1,014.78	1,014.83	1,000.02	14.81	68.519	CC	
3,100.00	3,099.99	3,072.99	3,072.99	10.86	10.78	-90.30	10.28	1,014.78	1,014.84	999.53	15.30	66.310		
3,200.00	3,199.91	3,172.91	3,172.91	11.18	11.14	-90.52	10.28	1,014.78	1,014.87	999.08	15.79	64.290		
3,300.00	3,299.69	3,272.69	3,272.69	11.51	11.50	-90.88	10.28	1,014.78	1,014.95	998.68	16.27	62.388	ES	
3,400.00	3,399.27	3,357.73	3,357.72	11.84	11.80	-91.30	10.15	1,015.20	1,015.65	998.94	16.71	60.784		
3,500.00	3,498.57	3,437.10	3,437.07	12.17	12.07	-91.75	9.57	1,017.13	1,018.39	1,001.26	17.13	59.457		
3,533.06	3,531.33	3,463.29	3,463.24	12.28	12.16	-91.91	9.27	1,018.12	1,019.77	1,002.51	17.27	59.065		
3,600.00	3,597.62	3,516.29	3,516.17	12.50	12.34	-92.27	8.51	1,020.64	1,023.28	1,005.74	17.54	58.333		
3,700.00	3,696.65	3,600.00	3,599.69	12.85	12.62	-92.82	6.87	1,026.05	1,030.25	1,012.28	17.97	57.334		
3,800.00	3,795.68	3,674.42	3,673.82	13.19	12.87	-93.26	4.96	1,032.33	1,039.24	1,020.88	18.36	56.593		
3,900.00	3,894.70	3,753.24	3,752.18	13.54	13.15	-93.70	2.49	1,040.49	1,050.25	1,031.48	18.77	55.953		
4,000.00	3,993.73	3,834.97	3,833.23	13.90	13.43	-94.11	-0.55	1,050.55	1,063.22	1,044.03	19.19	55.413		
4,100.00	4,092.76	3,933.65	3,930.99	14.26	13.78	-94.58	-4.43	1,063.35	1,076.93	1,057.26	19.68	54.728		
4,149.39	4,141.67	3,982.38	3,979.27	14.44	13.95	-94.81	-6.35	1,069.68	1,083.73	1,063.81	19.92	54.400		
4,200.00	4,191.83	4,032.35	4,028.78	14.62	14.13	-95.12	-8.31	1,076.16	1,090.69	1,070.51	20.17	54.069		
4,300.00	4,291.19	4,131.24	4,126.76	14.98	14.48	-95.64	-12.20	1,089.00	1,104.28	1,083.62	20.67	53.432		
4,400.00	4,390.81	4,230.29	4,224.89	15.34	14.84	-96.01	-16.09	1,101.85	1,117.64	1,096.48	21.16	52.817		
4,500.00	4,490.62	4,329.42	4,323.11	15.69	15.21	-96.24	-19.99	1,114.72	1,130.74	1,109.09	21.65	52.222		
4,600.00	4,490.56	4,428.57	4,421.35	16.04	15.57	-96.33	-23.89	1,127.58	1,143.55	1,121.41	22.14	51.647		
4,682.45	4,673.00	4,510.29	4,502.31	16.32	15.87	83.33	-27.10	1,138.19	1,153.91	1,131.37	22.55	51.182		
4,700.00	4,690.55	4,527.68	4,519.54	16.38	15.94	83.38	-27.79	1,140.45	1,156.10	1,133.47	22.63	51.084		
4,800.00	4,790.55	4,626.76	4,617.70	16.73	16.31	83.65	-31.68	1,153.31	1,168.57	1,145.44	23.12	50.537		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,900.00	4,890.55	4,725.83	4,715.86	17.08	16.68	83.90	-35.57	1,166.16	1,181.06	1,157.44	23.62	50.011		
5,000.00	4,990.55	4,824.91	4,814.02	17.43	17.05	84.16	-39.47	1,179.02	1,193.58	1,169.47	24.11	49.505		
5,100.00	5,090.55	4,923.99	4,912.18	17.78	17.43	84.41	-43.36	1,191.88	1,206.11	1,181.51	24.60	49.020		
5,200.00	5,190.55	5,023.06	5,010.34	18.13	17.81	84.65	-47.26	1,204.74	1,218.68	1,193.57	25.10	48.552		
5,300.00	5,290.55	5,122.14	5,108.51	18.48	18.18	84.89	-51.15	1,217.60	1,231.26	1,205.66	25.60	48.102		
5,400.00	5,390.55	5,221.21	5,206.67	18.83	18.57	85.12	-55.05	1,230.45	1,243.86	1,217.77	26.09	47.669		
5,500.00	5,490.55	5,320.29	5,304.83	19.19	18.95	85.35	-58.94	1,243.31	1,256.48	1,229.89	26.59	47.251		
5,600.00	5,590.55	5,419.37	5,402.99	19.54	19.33	85.57	-62.84	1,256.17	1,269.12	1,242.03	27.09	46.849		
5,700.00	5,690.55	5,518.44	5,501.15	19.89	19.72	85.79	-66.73	1,269.03	1,281.78	1,254.20	27.59	46.461		
5,800.00	5,790.55	5,617.52	5,599.31	20.24	20.10	86.01	-70.63	1,281.89	1,294.46	1,266.38	28.09	46.086		
5,900.00	5,890.55	5,716.60	5,697.47	20.59	20.49	86.22	-74.52	1,294.75	1,307.16	1,278.57	28.59	45.724		
6,000.00	5,990.55	5,815.67	5,795.63	20.95	20.88	86.43	-78.42	1,307.60	1,319.87	1,290.79	29.09	45.374		
6,100.00	6,090.55	5,914.75	5,893.79	21.30	21.27	86.63	-82.31	1,320.46	1,332.60	1,303.02	29.59	45.036		
6,200.00	6,190.55	6,013.83	5,991.96	21.65	21.66	86.83	-86.21	1,333.32	1,345.35	1,315.26	30.09	44.709		
6,300.00	6,290.55	6,112.90	6,090.12	22.00	22.05	87.03	-90.10	1,346.18	1,358.11	1,327.52	30.59	44.393		
6,400.00	6,390.55	6,211.98	6,188.28	22.36	22.44	87.22	-94.00	1,359.04	1,370.89	1,339.80	31.09	44.087		
6,500.00	6,490.55	6,311.05	6,286.44	22.71	22.84	87.41	-97.89	1,371.90	1,383.68	1,352.09	31.60	43.791		
6,600.00	6,590.55	6,410.13	6,384.60	23.06	23.23	87.59	-101.79	1,384.75	1,396.49	1,364.39	32.10	43.504		
6,700.00	6,690.55	6,509.21	6,482.76	23.42	23.62	87.77	-105.68	1,397.61	1,409.31	1,376.71	32.60	43.226		
6,800.00	6,790.55	6,608.28	6,580.92	23.77	24.02	87.95	-109.58	1,410.47	1,422.15	1,389.04	33.11	42.956		
6,900.00	6,890.55	6,707.36	6,679.08	24.13	24.42	88.13	-113.47	1,423.33	1,435.00	1,401.39	33.61	42.694		
7,000.00	6,990.55	6,806.44	6,777.25	24.48	24.81	88.30	-117.37	1,436.19	1,447.86	1,413.74	34.12	42.440		
7,100.00	7,090.55	6,905.51	6,875.41	24.83	25.21	88.47	-121.26	1,449.05	1,460.73	1,426.11	34.62	42.194		
7,200.00	7,190.55	7,004.59	6,973.57	25.19	25.61	88.63	-125.16	1,461.90	1,473.62	1,438.49	35.12	41.955		
7,300.00	7,290.55	7,156.85	7,124.75	25.54	26.21	88.85	-130.36	1,479.10	1,484.89	1,449.05	35.85	41.425		
7,400.00	7,390.55	7,315.34	7,282.75	25.90	26.80	89.00	-133.93	1,490.86	1,492.28	1,455.73	36.55	40.834		
7,500.00	7,490.55	7,474.58	7,441.88	26.25	27.36	89.06	-135.59	1,496.36	1,495.71	1,458.52	37.20	40.211		
7,600.00	7,590.55	7,596.25	7,563.55	26.61	27.78	89.07	-135.72	1,496.78	1,495.98	1,458.24	37.74	39.643		
7,700.00	7,690.55	7,696.25	7,663.55	26.96	28.11	89.07	-135.72	1,496.78	1,495.98	1,457.75	38.23	39.130		
7,800.00	7,790.55	7,796.25	7,763.55	27.32	28.45	89.07	-135.72	1,496.78	1,495.98	1,457.25	38.73	38.629		
7,900.00	7,890.55	7,896.25	7,863.55	27.67	28.79	89.07	-135.72	1,496.78	1,495.98	1,456.75	39.22	38.141		
8,000.00	7,990.55	7,996.25	7,963.55	28.03	29.12	89.07	-135.72	1,496.78	1,495.98	1,456.26	39.72	37.664		
8,100.00	8,090.55	8,096.25	8,063.55	28.38	29.46	89.07	-135.72	1,496.78	1,495.98	1,455.76	40.22	37.199		
8,117.49	8,108.04	8,113.74	8,081.04	28.44	29.52	89.07	-135.72	1,496.78	1,495.98	1,455.67	40.30	37.119		
8,150.00	8,140.53	8,146.23	8,113.53	28.56	29.63	-90.41	-135.72	1,496.78	1,495.98	1,455.52	40.46	36.972		
8,200.00	8,190.27	8,195.97	8,163.27	28.73	29.80	-90.59	-135.72	1,496.78	1,496.03	1,455.32	40.71	36.750		
8,250.00	8,239.37	8,245.07	8,212.37	28.91	29.97	-90.93	-135.72	1,496.78	1,496.15	1,455.20	40.96	36.530		
8,300.00	8,287.48	8,293.18	8,260.48	29.09	30.13	-91.40	-135.72	1,496.78	1,496.44	1,455.24	41.21	36.315		
8,350.00	8,334.22	8,339.92	8,307.22	29.27	30.29	-91.98	-135.72	1,496.78	1,497.00	1,455.54	41.46	36.109		
8,400.00	8,379.24	8,384.94	8,352.24	29.46	30.44	-92.63	-135.72	1,496.78	1,497.98	1,456.27	41.71	35.914		
8,450.00	8,422.20	8,427.90	8,395.20	29.66	30.59	-93.31	-135.72	1,496.78	1,499.52	1,457.56	41.96	35.735		
8,500.00	8,462.76	8,468.46	8,435.76	29.86	30.73	-93.99	-135.72	1,496.78	1,501.82	1,459.61	42.21	35.577		
8,550.00	8,500.63	8,506.33	8,473.63	30.07	30.85	-94.60	-135.72	1,496.78	1,505.06	1,462.59	42.46	35.443		
8,600.00	8,535.51	8,541.21	8,508.51	30.28	30.97	-95.12	-135.72	1,496.78	1,509.41	1,466.70	42.71	35.337		
8,650.00	8,567.13	8,572.83	8,540.13	30.51	31.08	-95.48	-135.72	1,496.78	1,515.06	1,472.09	42.96	35.264		
8,700.00	8,595.26	8,600.96	8,568.26	30.75	31.18	-95.65	-135.72	1,496.78	1,522.15	1,478.94	43.21	35.228		
8,750.00	8,619.68	8,625.38	8,592.68	30.99	31.26	-95.58	-135.72	1,496.78	1,530.80	1,487.35	43.45	35.231		
8,800.00	8,640.21	8,645.91	8,613.21	31.25	31.33	-95.24	-135.72	1,496.78	1,541.12	1,497.43	43.69	35.277		
8,850.00	8,656.69	8,662.39	8,629.69	31.52	31.39	-94.60	-135.72	1,496.78	1,553.13	1,509.22	43.91	35.367		
8,900.00	8,668.99	8,674.69	8,641.99	31.80	31.43	-93.63	-135.72	1,496.78	1,566.85	1,522.72	44.13	35.503		
8,950.00	8,677.03	8,682.73	8,650.03	32.09	31.46	-92.32	-135.72	1,496.78	1,582.23	1,537.89	44.34	35.684		
9,000.00	8,680.73	8,686.43	8,653.73	32.38	31.47	-90.66	-135.72	1,496.78	1,599.16	1,554.63	44.53	35.910		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,017.49	8,681.00	8,686.70	8,654.00	32.49	31.47	-90.00	-135.72	1,496.78	1,605.42	1,560.83	44.60	36.000		
9,100.00	8,681.00	8,686.70	8,654.00	33.00	31.47	-90.00	-135.72	1,496.78	1,637.18	1,592.28	44.89	36.469		
9,200.00	8,681.00	8,686.70	8,654.00	33.70	31.47	-90.00	-135.72	1,496.78	1,680.30	1,635.04	45.26	37.129		
9,300.00	8,681.00	8,686.70	8,654.00	34.46	31.47	-90.00	-135.72	1,496.78	1,728.13	1,682.52	45.61	37.887		
9,400.00	8,681.00	8,686.70	8,654.00	35.28	31.47	-90.00	-135.72	1,496.78	1,780.30	1,734.34	45.96	38.736		
9,500.00	8,681.00	8,686.70	8,654.00	36.15	31.47	-90.00	-135.72	1,496.78	1,836.44	1,790.15	46.29	39.672		
9,600.00	8,681.00	8,686.70	8,654.00	37.08	31.47	-90.00	-135.72	1,496.78	1,896.20	1,849.59	46.60	40.690		
9,700.00	8,681.00	8,686.70	8,654.00	38.06	31.47	-90.00	-135.72	1,496.78	1,959.23	1,912.34	46.89	41.782		
9,800.00	8,681.00	8,686.70	8,654.00	39.08	31.47	-90.00	-135.72	1,496.78	2,025.25	1,978.09	47.16	42.941		
9,900.00	8,681.00	8,686.70	8,654.00	40.15	31.47	-90.00	-135.72	1,496.78	2,093.96	2,046.55	47.42	44.162		
10,000.00	8,681.00	8,686.70	8,654.00	41.25	31.47	-90.00	-135.72	1,496.78	2,165.11	2,117.47	47.65	45.440		
10,100.00	8,681.00	8,686.70	8,654.00	42.39	31.47	-90.00	-135.72	1,496.78	2,238.47	2,190.61	47.86	46.771		
10,200.00	8,681.00	8,686.70	8,654.00	43.56	31.47	-90.00	-135.72	1,496.78	2,313.83	2,265.77	48.06	48.149		
10,300.00	8,681.00	8,686.70	8,654.00	44.77	31.47	-90.00	-135.72	1,496.78	2,390.99	2,342.76	48.23	49.571		
10,400.00	8,681.00	8,686.70	8,654.00	46.00	31.47	-90.00	-135.72	1,496.78	2,469.79	2,421.40	48.40	51.031		
10,500.00	8,681.00	8,686.70	8,654.00	47.25	31.47	-90.00	-135.72	1,496.78	2,550.08	2,501.53	48.55	52.526		
10,600.00	8,681.00	8,686.70	8,654.00	48.53	31.47	-90.00	-135.72	1,496.78	2,631.72	2,583.04	48.69	54.054		
10,700.00	8,681.00	8,686.70	8,654.00	49.83	31.47	-90.00	-135.72	1,496.78	2,714.59	2,665.78	48.82	55.609		
10,800.00	8,681.00	8,686.70	8,654.00	51.16	31.47	-90.00	-135.72	1,496.78	2,798.58	2,749.64	48.93	57.190		
10,900.00	8,681.00	8,686.70	8,654.00	52.50	31.47	-90.00	-135.72	1,496.78	2,883.59	2,834.54	49.05	58.794		
11,000.00	8,681.00	8,686.70	8,654.00	53.86	31.47	-90.00	-135.72	1,496.78	2,969.53	2,920.39	49.15	60.422		
11,100.00	8,681.00	8,686.70	8,654.00	55.23	31.47	-90.00	-135.72	1,496.78	3,056.33	3,007.09	49.24	62.069		
11,200.00	8,681.00	8,686.70	8,654.00	56.62	31.47	-90.00	-135.72	1,496.78	3,143.92	3,094.59	49.33	63.735		
11,300.00	8,681.00	8,686.70	8,654.00	58.02	31.47	-90.00	-135.72	1,496.78	3,232.22	3,182.81	49.41	65.417		
11,400.00	8,681.00	8,686.70	8,654.00	59.44	31.47	-90.00	-135.72	1,496.78	3,321.19	3,271.70	49.49	67.113		
11,500.00	8,681.00	8,686.70	8,654.00	60.86	31.47	-90.00	-135.72	1,496.78	3,410.77	3,361.21	49.56	68.822		
11,600.00	8,681.00	8,686.70	8,654.00	62.30	31.47	-90.00	-135.72	1,496.78	3,500.91	3,451.28	49.63	70.544		
11,700.00	8,681.00	8,686.70	8,654.00	63.75	31.47	-90.00	-135.72	1,496.78	3,591.58	3,541.88	49.69	72.277		
11,800.00	8,681.00	8,686.70	8,654.00	65.21	31.47	-90.00	-135.72	1,496.78	3,682.72	3,632.97	49.75	74.019		
11,900.00	8,681.00	15,274.86	12,023.00	66.68	72.92	-156.05	-3,600.64	1,530.75	3,686.31	3,628.22	58.09	63.455		
12,000.00	8,681.00	15,374.86	12,023.00	68.15	74.26	-156.05	-3,700.63	1,531.71	3,686.31	3,627.10	59.21	62.255		
12,100.00	8,681.00	15,474.86	12,023.00	69.63	75.62	-156.05	-3,800.63	1,532.71	3,686.31	3,625.97	60.34	61.089		
12,200.00	8,681.00	15,574.86	12,023.00	71.13	76.99	-156.05	-3,900.62	1,533.69	3,686.32	3,624.83	61.48	59.957		
12,300.00	8,681.00	15,674.86	12,023.00	72.62	78.36	-156.05	-4,000.62	1,534.67	3,686.32	3,623.69	62.63	58.856		
12,400.00	8,681.00	15,774.86	12,023.00	74.13	79.75	-156.05	-4,100.61	1,535.65	3,686.32	3,622.53	63.79	57.787		
12,500.00	8,681.00	15,874.86	12,023.00	75.64	81.15	-156.05	-4,200.61	1,536.64	3,686.33	3,621.37	64.96	56.749		
12,600.00	8,681.00	15,974.86	12,023.00	77.15	82.56	-156.05	-4,300.60	1,537.62	3,686.33	3,620.20	66.13	55.741		
12,700.00	8,681.00	16,074.86	12,023.00	78.68	83.98	-156.05	-4,400.60	1,538.60	3,686.33	3,619.02	67.32	54.762		
12,800.00	8,681.00	16,174.86	12,023.00	80.20	85.40	-156.05	-4,500.59	1,539.58	3,686.34	3,617.83	68.50	53.811		
12,900.00	8,681.00	16,274.86	12,023.00	81.74	86.83	-156.05	-4,600.59	1,540.56	3,686.34	3,616.64	69.70	52.888		
13,000.00	8,681.00	16,374.86	12,023.00	83.27	88.27	-156.05	-4,700.58	1,541.54	3,686.34	3,615.44	70.90	51.991		
13,100.00	8,681.00	16,474.86	12,023.00	84.81	89.72	-156.05	-4,800.58	1,542.52	3,686.35	3,614.24	72.11	51.122		
13,200.00	8,681.00	16,574.86	12,023.00	86.36	91.18	-156.05	-4,900.57	1,543.50	3,686.35	3,613.03	73.32	50.276		
13,300.00	8,681.00	16,674.86	12,023.00	87.91	92.64	-156.05	-5,000.57	1,544.48	3,686.35	3,611.82	74.54	49.455		
13,400.00	8,681.00	16,774.86	12,023.00	89.46	94.11	-156.05	-5,100.56	1,545.46	3,686.36	3,610.60	75.76	48.658		
13,500.00	8,681.00	16,874.86	12,023.00	91.01	95.58	-156.05	-5,200.56	1,546.44	3,686.36	3,609.38	76.99	47.884		
13,600.00	8,681.00	16,974.86	12,023.00	92.57	97.06	-156.05	-5,300.55	1,547.42	3,686.36	3,608.15	78.22	47.130		
13,700.00	8,681.00	17,074.86	12,023.00	94.13	98.55	-156.05	-5,400.55	1,548.40	3,686.37	3,606.92	79.45	46.398		
13,800.00	8,681.00	17,174.86	12,023.00	95.70	100.04	-156.05	-5,500.54	1,549.38	3,686.37	3,605.68	80.69	45.685		
13,900.00	8,681.00	17,274.86	12,023.00	97.27	101.53	-156.05	-5,600.54	1,550.36	3,686.37	3,604.44	81.93	44.992		
14,000.00	8,681.00	17,374.86	12,023.00	98.84	103.03	-156.05	-5,700.53	1,551.34	3,686.38	3,603.20	83.18	44.317		
14,100.00	8,681.00	17,474.86	12,023.00	100.41	104.54	-156.05	-5,800.53	1,552.32	3,686.38	3,601.95	84.43	43.661		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance								Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,200.00	8,681.00	17,574.86	12,023.00	101.99	106.04	-156.05	-5,900.52	1,553.30	3,686.38	3,600.70	85.69	43.021		
14,300.00	8,681.00	17,674.86	12,023.00	103.57	107.56	-156.05	-6,000.52	1,554.28	3,686.39	3,599.44	86.95	42.399		
14,400.00	8,681.00	17,774.86	12,023.00	105.15	109.07	-156.05	-6,100.52	1,555.26	3,686.39	3,598.18	88.21	41.793		
14,500.00	8,681.00	17,874.86	12,023.00	106.73	110.60	-156.05	-6,200.51	1,556.24	3,686.39	3,596.92	89.47	41.202		
14,600.00	8,681.00	17,974.86	12,023.00	108.31	112.12	-156.05	-6,300.51	1,557.22	3,686.40	3,595.66	90.74	40.627		
14,700.00	8,681.00	18,074.86	12,023.00	109.90	113.65	-156.05	-6,400.50	1,558.20	3,686.40	3,594.40	92.00	40.067		
14,800.00	8,681.00	18,174.86	12,023.00	111.49	115.18	-156.05	-6,500.50	1,559.19	3,686.40	3,593.13	93.28	39.521		
14,900.00	8,681.00	18,274.86	12,023.00	113.08	116.71	-156.05	-6,600.49	1,560.17	3,686.41	3,591.86	94.55	38.990		
15,000.00	8,681.00	18,374.86	12,023.00	114.67	118.25	-156.05	-6,700.49	1,561.15	3,686.41	3,590.59	95.82	38.471		
15,100.00	8,681.00	18,474.86	12,023.00	116.27	119.79	-156.05	-6,800.48	1,562.13	3,686.41	3,589.32	97.10	37.966		
15,200.00	8,681.00	18,574.86	12,023.00	117.86	121.34	-156.05	-6,900.48	1,563.11	3,686.42	3,588.04	98.38	37.472		
15,300.00	8,681.00	18,674.86	12,023.00	119.46	122.88	-156.05	-7,000.47	1,564.09	3,686.42	3,586.76	99.66	36.991		
15,400.00	8,681.00	18,774.86	12,023.00	121.06	124.43	-156.05	-7,100.47	1,565.07	3,686.42	3,585.48	100.94	36.521		
15,500.00	8,681.00	18,874.86	12,023.00	122.66	125.99	-156.05	-7,200.46	1,566.05	3,686.43	3,584.20	102.23	36.061		
15,600.00	8,681.00	18,974.86	12,023.00	124.26	127.54	-156.05	-7,300.46	1,567.03	3,686.43	3,582.92	103.51	35.613		
15,700.00	8,681.00	19,074.86	12,023.00	125.86	129.10	-156.05	-7,400.45	1,568.01	3,686.43	3,581.63	104.80	35.175		
15,800.00	8,681.00	19,174.86	12,023.00	127.46	130.66	-156.05	-7,500.45	1,568.99	3,686.44	3,580.34	106.09	34.747		
15,900.00	8,681.00	19,274.86	12,023.00	129.07	132.22	-156.05	-7,600.44	1,569.97	3,686.44	3,579.06	107.39	34.329		
16,000.00	8,681.00	19,374.86	12,023.00	130.67	133.78	-156.05	-7,700.44	1,570.95	3,686.44	3,577.76	108.68	33.920		
16,100.00	8,681.00	19,474.86	12,023.00	132.28	135.35	-156.05	-7,800.43	1,571.93	3,686.45	3,576.47	109.98	33.520		
16,200.00	8,681.00	19,574.86	12,023.00	133.89	136.92	-156.05	-7,900.43	1,572.91	3,686.45	3,575.18	111.27	33.130		
16,300.00	8,681.00	19,674.86	12,023.00	135.50	138.49	-156.05	-8,000.42	1,573.89	3,686.45	3,573.89	112.57	32.749		
16,400.00	8,681.00	19,774.86	12,023.00	137.11	140.06	-156.05	-8,100.42	1,574.87	3,686.46	3,572.59	113.86	32.376		
16,500.00	8,681.00	19,874.86	12,023.00	138.72	141.63	-156.05	-8,200.41	1,575.85	3,686.46	3,571.30	115.16	32.011		
16,600.00	8,681.00	19,974.86	12,023.00	140.33	143.21	-156.05	-8,300.41	1,576.83	3,686.46	3,570.00	116.46	31.654		
16,700.00	8,681.00	20,074.86	12,023.00	141.95	144.78	-156.05	-8,400.40	1,577.81	3,686.47	3,568.70	117.77	31.303		
16,800.00	8,681.00	20,174.86	12,023.00	143.56	146.36	-156.05	-8,500.40	1,578.79	3,686.47	3,567.40	119.07	30.961		
16,900.00	8,681.00	20,274.86	12,023.00	145.17	147.94	-156.05	-8,600.39	1,579.77	3,686.47	3,566.10	120.37	30.625		
17,000.00	8,681.00	20,374.86	12,023.00	146.79	149.52	-156.05	-8,700.39	1,580.75	3,686.48	3,564.80	121.68	30.297		
17,100.00	8,681.00	20,474.86	12,023.00	148.41	151.11	-156.05	-8,800.39	1,581.73	3,686.48	3,563.50	122.98	29.975		
17,200.00	8,681.00	20,574.86	12,023.00	150.02	152.69	-156.05	-8,900.38	1,582.72	3,686.48	3,562.20	124.29	29.661		
17,300.00	8,681.00	20,674.86	12,023.00	151.64	154.28	-156.05	-9,000.38	1,583.70	3,686.49	3,560.89	125.59	29.352		
17,400.00	8,681.00	20,774.86	12,023.00	153.26	155.86	-156.05	-9,100.37	1,584.68	3,686.49	3,559.59	126.90	29.050		
17,500.00	8,681.00	20,874.86	12,023.00	154.88	157.45	-156.05	-9,200.37	1,585.66	3,686.49	3,558.29	128.21	28.754		
17,600.00	8,681.00	20,974.86	12,023.00	156.50	159.04	-156.05	-9,300.36	1,586.64	3,686.50	3,556.98	129.52	28.463		
17,700.00	8,681.00	21,074.86	12,023.00	158.12	160.63	-156.05	-9,400.36	1,587.62	3,686.50	3,555.67	130.83	28.178		
17,800.00	8,681.00	21,174.86	12,023.00	159.74	162.23	-156.05	-9,500.35	1,588.60	3,686.50	3,554.36	132.14	27.898		
17,900.00	8,681.00	21,274.86	12,023.00	161.36	163.82	-156.05	-9,600.35	1,589.58	3,686.51	3,553.06	133.45	27.624		
18,000.00	8,681.00	21,374.86	12,023.00	162.99	165.41	-156.05	-9,700.34	1,590.56	3,686.51	3,551.75	134.76	27.356		
18,100.00	8,681.00	21,474.86	12,023.00	164.61	167.01	-156.05	-9,800.34	1,591.54	3,686.51	3,550.44	136.07	27.092		
18,200.00	8,681.00	21,574.86	12,023.00	166.23	168.61	-156.05	-9,900.33	1,592.52	3,686.52	3,549.13	137.38	26.834		
18,300.00	8,681.00	21,674.86	12,023.00	167.86	170.20	-156.05	-10,000.33	1,593.50	3,686.52	3,547.82	138.70	26.580		
18,400.00	8,681.00	21,774.86	12,023.00	169.48	171.80	-156.05	-10,100.32	1,594.48	3,686.52	3,546.51	140.01	26.330		
18,500.00	8,681.00	21,874.86	12,023.00	171.11	173.40	-156.05	-10,200.32	1,595.46	3,686.53	3,545.20	141.32	26.086		
18,600.00	8,681.00	21,974.86	12,023.00	172.73	175.00	-156.05	-10,300.31	1,596.44	3,686.53	3,543.89	142.64	25.845		
18,681.03	8,681.00	22,055.89	12,023.00	174.05	176.21	-156.05	-10,381.33	1,597.24	3,686.53	3,542.95	143.58	25.675 SF		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	15.30	15.30	0.00	0.02	-90.35	-17.21	-2,847.18	2,847.23					
100.00	100.00	115.30	115.30	0.13	0.18	-90.35	-17.21	-2,847.18	2,847.23	2,847.01	0.22	N/A		
200.00	200.00	215.30	215.30	0.48	0.54	-90.35	-17.21	-2,847.18	2,847.23	2,846.51	0.72	3,931.494		
300.00	300.00	315.30	315.30	0.84	0.90	-90.35	-17.21	-2,847.18	2,847.23	2,846.00	1.23	2,313.434		
400.00	400.00	415.30	415.30	1.20	1.26	-90.35	-17.21	-2,847.18	2,847.23	2,845.49	1.74	1,638.680		
500.00	500.00	515.30	515.30	1.56	1.61	-90.35	-17.21	-2,847.18	2,847.23	2,844.99	2.24	1,268.609		
600.00	600.00	615.30	615.30	1.92	1.97	-90.35	-17.21	-2,847.18	2,847.23	2,844.48	2.75	1,034.880		
700.00	700.00	715.30	715.30	2.28	2.33	-90.35	-17.21	-2,847.18	2,847.23	2,843.97	3.26	873.872		
800.00	800.00	815.30	815.30	2.63	2.69	-90.35	-17.21	-2,847.18	2,847.23	2,843.47	3.77	756.216		
900.00	900.00	915.30	915.30	2.99	3.05	-90.35	-17.21	-2,847.18	2,847.23	2,842.96	4.27	666.481		
1,000.00	1,000.00	1,015.30	1,015.30	3.35	3.41	-90.35	-17.21	-2,847.18	2,847.23	2,842.45	4.78	595.783		
1,100.00	1,100.00	1,115.30	1,115.30	3.71	3.77	-90.35	-17.21	-2,847.18	2,847.23	2,841.95	5.29	538.645		
1,200.00	1,200.00	1,215.30	1,215.30	4.07	4.12	-90.35	-17.21	-2,847.18	2,847.23	2,841.44	5.79	491.508		
1,300.00	1,300.00	1,315.30	1,315.30	4.43	4.48	-90.35	-17.21	-2,847.18	2,847.23	2,840.93	6.30	451.956		
1,400.00	1,400.00	1,415.30	1,415.30	4.79	4.84	-90.35	-17.21	-2,847.18	2,847.23	2,840.43	6.81	418.296		
1,500.00	1,500.00	1,515.30	1,515.30	5.14	5.20	-90.35	-17.21	-2,847.18	2,847.23	2,839.92	7.31	389.302		
1,600.00	1,600.00	1,615.30	1,615.30	5.50	5.56	-90.35	-17.21	-2,847.18	2,847.23	2,839.41	7.82	364.066		
1,700.00	1,700.00	1,715.30	1,715.30	5.86	5.92	-90.35	-17.21	-2,847.18	2,847.23	2,838.90	8.33	341.903		
1,800.00	1,800.00	1,815.30	1,815.30	6.22	6.27	-90.35	-17.21	-2,847.18	2,847.23	2,838.40	8.83	322.284		
1,900.00	1,900.00	1,915.30	1,915.30	6.58	6.63	-90.35	-17.21	-2,847.18	2,847.23	2,837.89	9.34	304.794		
2,000.00	2,000.00	2,015.30	2,015.30	6.94	6.99	-90.35	-17.21	-2,847.18	2,847.23	2,837.38	9.85	289.105		
2,100.00	2,100.00	2,115.30	2,115.30	7.29	7.35	-90.35	-17.21	-2,847.18	2,847.23	2,836.88	10.36	274.952		
2,200.00	2,200.00	2,215.30	2,215.30	7.65	7.71	-90.35	-17.21	-2,847.18	2,847.23	2,836.37	10.86	262.119		
2,300.00	2,300.00	2,315.30	2,315.30	8.01	8.07	-90.35	-17.21	-2,847.18	2,847.23	2,835.86	11.37	250.432		
2,400.00	2,400.00	2,415.30	2,415.30	8.37	8.43	-90.35	-17.21	-2,847.18	2,847.23	2,835.36	11.88	239.742		
2,500.00	2,500.00	2,515.30	2,515.30	8.73	8.78	-90.35	-17.21	-2,847.18	2,847.23	2,834.85	12.38	229.927		
2,600.00	2,600.00	2,615.30	2,615.30	9.09	9.14	-90.35	-17.21	-2,847.18	2,847.23	2,834.34	12.89	220.884		
2,700.00	2,700.00	2,715.30	2,715.30	9.45	9.50	-90.35	-17.21	-2,847.18	2,847.23	2,833.83	13.40	212.526		
2,800.00	2,800.00	2,815.30	2,815.30	9.80	9.86	-90.35	-17.21	-2,847.18	2,847.23	2,833.33	13.90	204.777		
2,900.00	2,900.00	2,915.30	2,915.30	10.16	10.22	-90.35	-17.21	-2,847.18	2,847.23	2,832.82	14.41	197.573		
3,000.00	3,000.00	3,015.30	3,015.30	10.52	10.58	-90.35	-17.21	-2,847.18	2,847.23	2,832.31	14.92	190.859 CC		
3,000.00	3,000.00	3,015.30	3,015.30	10.52	10.58	-90.35	-17.21	-2,847.18	2,847.23	2,832.31	14.92	190.859		
3,100.00	3,099.99	3,115.29	3,115.29	10.86	10.93	90.04	-17.21	-2,847.18	2,847.23	2,831.82	15.41	184.745		
3,200.00	3,199.91	3,215.21	3,215.21	11.18	11.29	90.12	-17.21	-2,847.18	2,847.24	2,831.34	15.89	179.149		
3,202.37	3,202.28	3,217.58	3,217.58	11.19	11.30	90.12	-17.21	-2,847.18	2,847.24	2,831.33	15.90	179.020		
3,300.00	3,299.69	3,300.00	3,300.00	11.51	11.60	90.22	-17.21	-2,847.18	2,847.30	2,830.96	16.34	174.282 ES		
3,400.00	3,399.27	3,366.32	3,366.32	11.84	11.83	90.33	-17.34	-2,847.74	2,848.28	2,831.55	16.73	170.253		
3,500.00	3,498.57	3,423.82	3,423.80	12.17	12.02	90.42	-17.65	-2,849.14	2,850.81	2,833.71	17.10	166.727		
3,533.06	3,531.33	3,442.79	3,442.76	12.28	12.09	90.45	-17.79	-2,849.78	2,851.97	2,834.75	17.22	165.621		
3,600.00	3,597.62	3,500.00	3,499.91	12.50	12.28	90.60	-18.35	-2,852.29	2,854.96	2,837.44	17.51	163.009		
3,700.00	3,696.65	3,538.49	3,538.33	12.85	12.41	90.70	-18.83	-2,854.44	2,860.40	2,842.56	17.83	160.394		
3,800.00	3,795.68	3,616.83	3,616.49	13.19	12.68	90.89	-20.00	-2,859.68	2,867.26	2,849.00	18.26	157.029		
3,900.00	3,894.70	3,715.82	3,715.24	13.54	13.02	91.13	-21.51	-2,866.42	2,874.35	2,855.61	18.74	153.342		
4,000.00	3,993.73	3,814.81	3,813.99	13.90	13.36	91.37	-23.02	-2,873.16	2,881.50	2,862.27	19.23	149.814		
4,100.00	4,092.76	3,913.81	3,912.74	14.26	13.70	91.62	-24.52	-2,879.91	2,888.70	2,868.97	19.73	146.438		
4,149.39	4,141.67	3,962.70	3,961.52	14.44	13.87	91.73	-25.27	-2,883.24	2,892.27	2,872.30	19.97	144.824		
4,200.00	4,191.83	4,012.84	4,011.53	14.62	14.05	91.90	-26.03	-2,886.65	2,895.93	2,875.71	20.22	143.208		
4,300.00	4,291.19	4,112.12	4,110.57	14.98	14.39	92.20	-27.54	-2,893.42	2,903.13	2,882.42	20.72	140.128		
4,400.00	4,390.81	4,211.62	4,209.84	15.34	14.74	92.44	-29.05	-2,900.20	2,910.26	2,889.05	21.21	137.197		
4,500.00	4,490.62	4,311.28	4,309.25	15.69	15.09	92.63	-30.57	-2,906.99	2,917.28	2,895.58	21.70	134.410		
4,600.00	4,590.56	4,411.03	4,408.75	16.04	15.45	92.77	-32.09	-2,913.78	2,924.19	2,902.00	22.19	131.758		
4,682.45	4,673.00	4,493.28	4,490.81	16.32	15.74	-87.52	-33.34	-2,919.38	2,929.79	2,907.20	22.60	129.653		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,700.00	4,690.55	4,510.79	4,508.27	16.38	15.80	-87.52	-33.61	-2,920.58	2,930.98	2,908.29	22.68	129.213		
4,800.00	4,790.55	4,610.55	4,607.78	16.73	16.15	-87.56	-35.13	-2,927.37	2,937.72	2,914.54	23.18	126.762		
4,900.00	4,890.55	4,710.30	4,707.30	17.08	16.51	-87.59	-36.64	-2,934.17	2,944.46	2,920.79	23.67	124.410		
5,000.00	4,990.55	4,810.06	4,806.81	17.43	16.86	-87.63	-38.16	-2,940.96	2,951.20	2,927.04	24.16	122.149		
5,100.00	5,090.55	4,909.82	4,906.32	17.78	17.22	-87.66	-39.68	-2,947.76	2,957.95	2,933.29	24.65	119.977		
5,200.00	5,190.55	5,009.57	5,005.84	18.13	17.58	-87.70	-41.20	-2,954.55	2,964.69	2,939.55	25.15	117.886		
5,300.00	5,290.55	5,109.33	5,105.35	18.48	17.93	-87.73	-42.72	-2,961.35	2,971.44	2,945.80	25.64	115.874		
5,400.00	5,390.55	5,209.08	5,204.86	18.83	18.29	-87.77	-44.23	-2,968.14	2,978.19	2,952.05	26.14	113.935		
5,500.00	5,490.55	5,308.84	5,304.37	19.19	18.65	-87.80	-45.75	-2,974.94	2,984.94	2,958.30	26.64	112.067		
5,600.00	5,590.55	5,408.60	5,403.89	19.54	19.01	-87.84	-47.27	-2,981.74	2,991.69	2,964.56	27.13	110.264		
5,700.00	5,690.55	5,508.35	5,503.40	19.89	19.37	-87.87	-48.79	-2,988.53	2,998.44	2,970.81	27.63	108.525		
5,800.00	5,790.55	5,608.11	5,602.91	20.24	19.73	-87.90	-50.31	-2,995.33	3,005.19	2,977.07	28.13	106.846		
5,900.00	5,890.55	5,707.86	5,702.42	20.59	20.10	-87.94	-51.82	-3,002.12	3,011.95	2,983.32	28.62	105.223		
6,000.00	5,990.55	5,807.62	5,801.94	20.95	20.46	-87.97	-53.34	-3,008.92	3,018.70	2,989.58	29.12	103.655		
6,100.00	6,090.55	5,907.38	5,901.45	21.30	20.82	-88.00	-54.86	-3,015.71	3,025.46	2,995.84	29.62	102.138		
6,200.00	6,190.55	6,007.13	6,000.96	21.65	21.18	-88.04	-56.38	-3,022.51	3,032.21	3,002.09	30.12	100.670		
6,300.00	6,290.55	6,265.00	6,258.49	22.00	22.11	-88.10	-59.10	-3,034.70	3,037.74	3,006.69	31.05	97.842		
6,400.00	6,390.55	6,412.37	6,405.85	22.36	22.63	-88.10	-59.21	-3,035.18	3,037.85	3,006.19	31.66	95.947		
6,500.00	6,490.55	6,512.37	6,505.85	22.71	22.98	-88.10	-59.21	-3,035.18	3,037.85	3,005.69	32.16	94.458		
6,600.00	6,590.55	6,612.37	6,605.85	23.06	23.33	-88.10	-59.21	-3,035.18	3,037.85	3,005.19	32.66	93.014		
6,700.00	6,690.55	6,712.37	6,705.85	23.42	23.68	-88.10	-59.21	-3,035.18	3,037.85	3,004.69	33.16	91.612		
6,800.00	6,790.55	6,812.37	6,805.85	23.77	24.03	-88.10	-59.21	-3,035.18	3,037.85	3,004.19	33.66	90.252		
6,900.00	6,890.55	6,912.37	6,905.85	24.13	24.38	-88.10	-59.21	-3,035.18	3,037.85	3,003.69	34.16	88.931		
7,000.00	6,990.55	7,012.37	7,005.85	24.48	24.73	-88.10	-59.21	-3,035.18	3,037.85	3,003.19	34.66	87.647		
7,100.00	7,090.55	7,112.37	7,105.85	24.83	25.09	-88.10	-59.21	-3,035.18	3,037.85	3,002.69	35.16	86.400		
7,200.00	7,190.55	7,212.37	7,205.85	25.19	25.44	-88.10	-59.21	-3,035.18	3,037.85	3,002.19	35.66	85.187		
7,300.00	7,290.55	7,312.37	7,305.85	25.54	25.79	-88.10	-59.21	-3,035.18	3,037.85	3,001.69	36.16	84.008		
7,400.00	7,390.55	7,412.37	7,405.85	25.90	26.14	-88.10	-59.21	-3,035.18	3,037.85	3,001.19	36.66	82.860		
7,500.00	7,490.55	7,512.37	7,505.85	26.25	26.49	-88.10	-59.21	-3,035.18	3,037.85	3,000.69	37.16	81.742		
7,600.00	7,590.55	7,612.37	7,605.85	26.61	26.85	-88.10	-59.21	-3,035.18	3,037.85	3,000.19	37.66	80.655		
7,700.00	7,690.55	7,712.37	7,705.85	26.96	27.20	-88.10	-59.21	-3,035.18	3,037.85	2,999.69	38.17	79.595		
7,800.00	7,790.55	7,812.37	7,805.85	27.32	27.55	-88.10	-59.21	-3,035.18	3,037.85	2,999.18	38.67	78.562		
7,900.00	7,890.55	7,912.37	7,905.85	27.67	27.91	-88.10	-59.21	-3,035.18	3,037.85	2,998.68	39.17	77.556		
8,000.00	7,990.55	8,012.37	8,005.85	28.03	28.26	-88.10	-59.21	-3,035.18	3,037.85	2,998.18	39.67	76.575		
8,100.00	8,090.55	8,112.37	8,105.85	28.38	28.61	-88.10	-59.21	-3,035.18	3,037.85	2,997.68	40.17	75.618		
8,117.49	8,108.04	8,129.85	8,123.34	28.44	28.67	-88.10	-59.21	-3,035.18	3,037.85	2,997.59	40.26	75.453		
8,150.00	8,140.53	8,162.35	8,155.83	28.56	28.79	92.47	-59.21	-3,035.18	3,037.89	2,997.47	40.42	75.153		
8,200.00	8,190.27	8,212.08	8,205.57	28.73	28.96	92.54	-59.21	-3,035.18	3,038.11	2,997.44	40.67	74.702		
8,250.00	8,239.37	8,261.19	8,254.67	28.91	29.14	92.67	-59.21	-3,035.18	3,038.55	2,997.63	40.92	74.259		
8,300.00	8,287.48	8,309.29	8,302.78	29.09	29.31	92.85	-59.21	-3,035.18	3,039.23	2,998.06	41.17	73.827		
8,350.00	8,334.22	8,356.04	8,349.52	29.27	29.47	93.06	-59.21	-3,035.18	3,040.20	2,998.79	41.42	73.408		
8,400.00	8,379.24	8,401.06	8,394.54	29.46	29.63	93.30	-59.21	-3,035.18	3,041.54	2,999.88	41.66	73.005		
8,450.00	8,422.20	8,444.01	8,437.50	29.66	29.78	93.53	-59.21	-3,035.18	3,043.32	3,001.41	41.91	72.619		
8,500.00	8,462.76	8,484.58	8,478.06	29.86	29.93	93.75	-59.21	-3,035.18	3,045.61	3,003.46	42.15	72.253		
8,550.00	8,500.63	8,522.44	8,515.93	30.07	30.06	93.93	-59.21	-3,035.18	3,048.50	3,006.10	42.39	71.908		
8,600.00	8,535.51	8,557.32	8,550.81	30.28	30.19	94.04	-59.21	-3,035.18	3,052.06	3,009.43	42.64	71.586		
8,650.00	8,567.13	8,588.95	8,582.43	30.51	30.30	94.06	-59.21	-3,035.18	3,056.39	3,013.51	42.87	71.289		
8,700.00	8,595.26	8,617.08	8,610.56	30.75	30.40	93.98	-59.21	-3,035.18	3,061.53	3,018.42	43.11	71.017		
8,750.00	8,619.68	8,641.50	8,634.98	30.99	30.48	93.78	-59.21	-3,035.18	3,067.56	3,024.22	43.34	70.774		
8,800.00	8,640.21	8,662.03	8,655.51	31.25	30.56	93.43	-59.21	-3,035.18	3,074.51	3,030.94	43.57	70.559		
8,850.00	8,656.69	8,678.51	8,671.99	31.52	30.61	92.93	-59.21	-3,035.18	3,082.40	3,038.60	43.80	70.375		
8,900.00	8,668.99	8,690.81	8,684.29	31.80	30.66	92.25	-59.21	-3,035.18	3,091.22	3,047.20	44.02	70.223		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 801H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation				
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
8,950.00	8,677.03	8,698.84	8,692.33	32.09	30.69	91.41	-59.21	-3,035.18	3,100.96	3,056.73	44.23	70.103				
9,000.00	8,680.73	8,702.55	8,696.03	32.38	30.70	90.40	-59.21	-3,035.18	3,111.57	3,067.13	44.44	70.018				
9,017.49	8,681.00	8,702.81	8,696.30	32.49	30.70	90.00	-59.21	-3,035.18	3,115.47	3,070.96	44.51	69.996				
9,100.00	8,681.00	8,702.81	8,696.30	33.00	30.70	90.00	-59.21	-3,035.18	3,135.12	3,090.28	44.85	69.903				
9,200.00	8,681.00	8,702.81	8,696.30	33.70	30.70	90.00	-59.21	-3,035.18	3,161.67	3,116.38	45.29	69.802				
9,300.00	8,681.00	8,702.81	8,696.30	34.46	30.70	90.00	-59.21	-3,035.18	3,191.13	3,145.36	45.77	69.720				
9,400.00	8,681.00	8,702.81	8,696.30	35.28	30.70	90.00	-59.21	-3,035.18	3,223.43	3,177.15	46.27	69.664				
9,500.00	8,681.00	8,702.81	8,696.30	36.15	30.70	90.00	-59.21	-3,035.18	3,258.47	3,211.68	46.79	69.638 SF				
9,600.00	8,681.00	8,702.81	8,696.30	37.08	30.70	90.00	-59.21	-3,035.18	3,296.18	3,248.85	47.33	69.648				
9,700.00	8,681.00	8,702.81	8,696.30	38.06	30.70	90.00	-59.21	-3,035.18	3,336.46	3,288.58	47.87	69.695				
9,800.00	8,681.00	8,702.81	8,696.30	39.08	30.70	90.00	-59.21	-3,035.18	3,379.21	3,330.79	48.42	69.785				
9,900.00	8,681.00	8,702.81	8,696.30	40.15	30.70	90.00	-59.21	-3,035.18	3,424.36	3,375.38	48.98	69.918				
10,000.00	8,681.00	8,702.81	8,696.30	41.25	30.70	90.00	-59.21	-3,035.18	3,471.80	3,422.27	49.53	70.096				
10,100.00	8,681.00	8,702.81	8,696.30	42.39	30.70	90.00	-59.21	-3,035.18	3,521.44	3,471.37	50.07	70.324				
10,200.00	8,681.00	8,702.81	8,696.30	43.56	30.70	90.00	-59.21	-3,035.18	3,573.19	3,522.58	50.61	70.598				
10,300.00	8,681.00	8,702.81	8,696.30	44.77	30.70	90.00	-59.21	-3,035.18	3,626.96	3,575.82	51.14	70.916				
10,400.00	8,681.00	8,702.81	8,696.30	46.00	30.70	90.00	-59.21	-3,035.18	3,682.66	3,631.00	51.67	71.278				
10,500.00	8,681.00	8,702.81	8,696.30	47.25	30.70	90.00	-59.21	-3,035.18	3,740.21	3,688.03	52.18	71.685				
10,600.00	8,681.00	8,702.81	8,696.30	48.53	30.70	90.00	-59.21	-3,035.18	3,799.52	3,746.84	52.67	72.135				
10,700.00	8,681.00	8,702.81	8,696.30	49.83	30.70	90.00	-59.21	-3,035.18	3,860.50	3,807.35	53.16	72.626				
10,800.00	8,681.00	8,702.81	8,696.30	51.16	30.70	90.00	-59.21	-3,035.18	3,923.09	3,869.47	53.62	73.160				
10,900.00	8,681.00	8,702.81	8,696.30	52.50	30.70	90.00	-59.21	-3,035.18	3,987.20	3,933.13	54.07	73.736				
11,000.00	8,681.00	8,702.81	8,696.30	53.86	30.70	90.00	-59.21	-3,035.18	4,052.77	3,998.26	54.51	74.349				
11,100.00	8,681.00	8,702.81	8,696.30	55.23	30.70	90.00	-59.21	-3,035.18	4,119.72	4,064.79	54.93	74.998				
11,200.00	8,681.00	8,702.81	8,696.30	56.62	30.70	90.00	-59.21	-3,035.18	4,187.99	4,132.65	55.34	75.681				
11,300.00	8,681.00	8,702.81	8,696.30	58.02	30.70	90.00	-59.21	-3,035.18	4,257.51	4,201.78	55.73	76.397				
11,400.00	8,681.00	8,702.81	8,696.30	59.44	30.70	90.00	-59.21	-3,035.18	4,328.23	4,272.12	56.11	77.141				
11,500.00	8,681.00	8,702.81	8,696.30	60.86	30.70	90.00	-59.21	-3,035.18	4,400.08	4,343.61	56.47	77.915				
11,600.00	8,681.00	8,702.81	8,696.30	62.30	30.70	90.00	-59.21	-3,035.18	4,473.02	4,416.19	56.82	78.719				
11,700.00	8,681.00	8,702.81	8,696.30	63.75	30.70	90.00	-59.21	-3,035.18	4,546.98	4,489.82	57.16	79.553				
11,800.00	8,681.00	8,702.81	8,696.30	65.21	30.70	90.00	-59.21	-3,035.18	4,621.92	4,564.45	57.48	80.412				
11,900.00	8,681.00	8,702.81	8,696.30	66.68	30.70	90.00	-59.21	-3,035.18	4,697.80	4,640.01	57.79	81.296				
12,000.00	8,681.00	8,702.81	8,696.30	68.15	30.70	90.00	-59.21	-3,035.18	4,774.57	4,716.48	58.08	82.202				
12,100.00	8,681.00	8,702.81	8,696.30	69.63	30.70	90.00	-59.21	-3,035.18	4,852.18	4,793.81	58.37	83.130				
12,200.00	8,681.00	8,702.81	8,696.30	71.13	30.70	90.00	-59.21	-3,035.18	4,930.60	4,871.95	58.64	84.079				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	15.30	15.30	0.00	0.02	-90.34	-16.97	-2,822.19	2,822.24					
100.00	100.00	115.30	115.30	0.13	0.18	-90.34	-16.97	-2,822.19	2,822.24	2,822.02	0.22	N/A		
200.00	200.00	215.30	215.30	0.48	0.54	-90.34	-16.97	-2,822.19	2,822.24	2,821.52	0.72	3,896.986		
300.00	300.00	315.30	315.30	0.84	0.90	-90.34	-16.97	-2,822.19	2,822.24	2,821.01	1.23	2,293.128		
400.00	400.00	415.30	415.30	1.20	1.26	-90.34	-16.97	-2,822.19	2,822.24	2,820.50	1.74	1,624.297		
500.00	500.00	515.30	515.30	1.56	1.61	-90.34	-16.97	-2,822.19	2,822.24	2,820.00	2.24	1,257.474		
600.00	600.00	615.30	615.30	1.92	1.97	-90.34	-16.97	-2,822.19	2,822.24	2,819.49	2.75	1,025.797		
700.00	700.00	715.30	715.30	2.28	2.33	-90.34	-16.97	-2,822.19	2,822.24	2,818.98	3.26	866.202		
800.00	800.00	815.30	815.30	2.63	2.69	-90.34	-16.97	-2,822.19	2,822.24	2,818.48	3.77	749.579		
900.00	900.00	915.30	915.30	2.99	3.05	-90.34	-16.97	-2,822.19	2,822.24	2,817.97	4.27	660.632		
1,000.00	1,000.00	1,015.30	1,015.30	3.35	3.41	-90.34	-16.97	-2,822.19	2,822.24	2,817.46	4.78	590.554		
1,100.00	1,100.00	1,115.30	1,115.30	3.71	3.77	-90.34	-16.97	-2,822.19	2,822.24	2,816.96	5.29	533.918		
1,200.00	1,200.00	1,215.30	1,215.30	4.07	4.12	-90.34	-16.97	-2,822.19	2,822.24	2,816.45	5.79	487.193		
1,300.00	1,300.00	1,315.30	1,315.30	4.43	4.48	-90.34	-16.97	-2,822.19	2,822.24	2,815.94	6.30	447.989		
1,400.00	1,400.00	1,415.30	1,415.30	4.79	4.84	-90.34	-16.97	-2,822.19	2,822.24	2,815.43	6.81	414.624		
1,500.00	1,500.00	1,515.30	1,515.30	5.14	5.20	-90.34	-16.97	-2,822.19	2,822.24	2,814.93	7.31	385.884		
1,600.00	1,600.00	1,615.30	1,615.30	5.50	5.56	-90.34	-16.97	-2,822.19	2,822.24	2,814.42	7.82	360.871		
1,700.00	1,700.00	1,715.30	1,715.30	5.86	5.92	-90.34	-16.97	-2,822.19	2,822.24	2,813.91	8.33	338.902		
1,800.00	1,800.00	1,815.30	1,815.30	6.22	6.27	-90.34	-16.97	-2,822.19	2,822.24	2,813.41	8.83	319.455		
1,900.00	1,900.00	1,915.30	1,915.30	6.58	6.63	-90.34	-16.97	-2,822.19	2,822.24	2,812.90	9.34	302.119		
2,000.00	2,000.00	2,015.30	2,015.30	6.94	6.99	-90.34	-16.97	-2,822.19	2,822.24	2,812.39	9.85	286.567		
2,100.00	2,100.00	2,115.30	2,115.30	7.29	7.35	-90.34	-16.97	-2,822.19	2,822.24	2,811.89	10.36	272.538		
2,200.00	2,200.00	2,215.30	2,215.30	7.65	7.71	-90.34	-16.97	-2,822.19	2,822.24	2,811.38	10.86	259.819		
2,300.00	2,300.00	2,315.30	2,315.30	8.01	8.07	-90.34	-16.97	-2,822.19	2,822.24	2,810.87	11.37	248.234		
2,400.00	2,400.00	2,415.30	2,415.30	8.37	8.43	-90.34	-16.97	-2,822.19	2,822.24	2,810.36	11.88	237.637		
2,500.00	2,500.00	2,515.30	2,515.30	8.73	8.78	-90.34	-16.97	-2,822.19	2,822.24	2,809.86	12.38	227.909		
2,600.00	2,600.00	2,615.30	2,615.30	9.09	9.14	-90.34	-16.97	-2,822.19	2,822.24	2,809.35	12.89	218.945		
2,700.00	2,700.00	2,715.30	2,715.30	9.45	9.50	-90.34	-16.97	-2,822.19	2,822.24	2,808.84	13.40	210.660		
2,800.00	2,800.00	2,815.30	2,815.30	9.80	9.86	-90.34	-16.97	-2,822.19	2,822.24	2,808.34	13.90	202.980		
2,900.00	2,900.00	2,915.30	2,915.30	10.16	10.22	-90.34	-16.97	-2,822.19	2,822.24	2,807.83	14.41	195.839		
3,000.00	3,000.00	3,015.30	3,015.30	10.52	10.58	-90.34	-16.97	-2,822.19	2,822.24	2,807.32	14.92	189.184		
3,100.00	3,099.99	3,115.29	3,115.29	10.86	10.93	90.04	-16.97	-2,822.19	2,822.24	2,806.83	15.41	183.123		
3,200.00	3,199.91	3,257.96	3,257.96	11.18	11.44	90.16	-16.99	-2,821.75	2,822.13	2,806.14	16.00	176.418		
3,300.00	3,299.69	3,572.84	3,572.23	11.51	12.52	90.64	-17.96	-2,803.78	2,815.63	2,798.69	16.94	166.174		
3,400.00	3,399.27	3,898.25	3,894.40	11.84	13.68	91.41	-20.37	-2,758.84	2,800.39	2,782.55	17.84	156.978		
3,500.00	3,498.57	3,996.20	3,990.90	12.17	14.04	91.89	-21.27	-2,742.06	2,783.47	2,765.16	18.31	152.027		
3,533.06	3,531.33	4,028.52	4,022.74	12.28	14.16	92.06	-21.57	-2,736.52	2,777.90	2,759.44	18.47	150.440		
3,600.00	3,597.62	4,093.92	4,087.17	12.50	14.40	92.25	-22.17	-2,725.32	2,766.66	2,747.88	18.78	147.298		
3,700.00	3,696.65	4,191.62	4,183.42	12.85	14.77	92.52	-23.07	-2,708.58	2,749.93	2,730.67	19.26	142.771		
3,800.00	3,795.68	4,289.32	4,279.68	13.19	15.14	92.80	-23.97	-2,691.84	2,733.26	2,713.51	19.74	138.436		
3,900.00	3,894.70	4,387.03	4,375.93	13.54	15.52	93.08	-24.87	-2,675.10	2,716.65	2,696.42	20.23	134.285		
4,000.00	3,993.73	4,484.73	4,472.18	13.90	15.90	93.37	-25.77	-2,658.36	2,700.11	2,679.39	20.72	130.309		
4,100.00	4,092.76	4,582.43	4,568.44	14.26	16.28	93.66	-26.67	-2,641.62	2,683.63	2,662.42	21.21	126.499		
4,149.39	4,141.67	4,630.68	4,615.98	14.44	16.47	93.80	-27.11	-2,633.35	2,675.52	2,654.06	21.46	124.677		
4,200.00	4,191.83	4,680.17	4,664.73	14.62	16.66	93.82	-27.57	-2,624.87	2,667.21	2,645.49	21.71	122.849		
4,300.00	4,291.19	4,778.17	4,761.28	14.98	17.05	93.81	-28.47	-2,608.08	2,650.68	2,628.48	22.21	119.354		
4,400.00	4,390.81	4,876.40	4,858.05	15.34	17.45	93.74	-29.37	-2,591.25	2,634.03	2,611.32	22.71	116.010		
4,500.00	4,490.62	4,974.80	4,954.99	15.69	17.84	93.62	-30.28	-2,574.39	2,617.22	2,594.02	23.20	112.813		
4,600.00	4,590.56	5,073.29	5,052.02	16.04	18.24	93.43	-31.19	-2,557.51	2,600.27	2,576.58	23.69	109.755		
4,682.45	4,673.00	5,154.52	5,132.04	16.32	18.57	-87.12	-31.93	-2,543.60	2,586.17	2,562.07	24.10	107.321		
4,700.00	4,690.55	5,171.81	5,149.07	16.38	18.64	-87.12	-32.09	-2,540.63	2,583.16	2,558.97	24.18	106.812		
4,800.00	4,790.55	5,270.33	5,246.13	16.73	19.04	-87.12	-33.00	-2,523.75	2,566.00	2,541.32	24.68	103.977		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,900.00	4,890.55	5,368.84	5,343.19	17.08	19.45	-87.12	-33.91	-2,506.88	2,548.84	2,523.67	25.17	101.250		
5,000.00	4,990.55	5,467.36	5,440.24	17.43	19.85	-87.12	-34.81	-2,490.00	2,531.68	2,506.01	25.67	98.625		
5,100.00	5,090.55	5,565.88	5,537.30	17.78	20.26	-87.12	-35.72	-2,473.12	2,514.53	2,488.36	26.17	96.097		
5,200.00	5,190.55	5,664.39	5,634.35	18.13	20.67	-87.13	-36.63	-2,456.24	2,497.37	2,470.70	26.66	93.661		
5,300.00	5,290.55	5,762.91	5,731.41	18.48	21.08	-87.13	-37.53	-2,439.36	2,480.21	2,453.05	27.16	91.311		
5,400.00	5,390.55	5,861.43	5,828.47	18.83	21.50	-87.13	-38.44	-2,422.48	2,463.05	2,435.39	27.66	89.045		
5,500.00	5,490.55	5,959.94	5,925.52	19.19	21.91	-87.13	-39.35	-2,405.60	2,445.89	2,417.73	28.16	86.857		
5,600.00	5,590.55	6,058.46	6,022.58	19.54	22.33	-87.13	-40.25	-2,388.72	2,428.74	2,400.08	28.66	84.743		
5,700.00	5,690.55	6,156.98	6,119.63	19.89	22.74	-87.13	-41.16	-2,371.84	2,411.58	2,382.42	29.16	82.700		
5,800.00	5,790.55	6,255.49	6,216.69	20.24	23.16	-87.13	-42.07	-2,354.96	2,394.42	2,364.76	29.66	80.725		
5,900.00	5,890.55	6,354.01	6,313.75	20.59	23.58	-87.14	-42.97	-2,338.08	2,377.26	2,347.10	30.16	78.814		
6,000.00	5,990.55	6,452.53	6,410.80	20.95	24.00	-87.14	-43.88	-2,321.20	2,360.10	2,329.44	30.66	76.965		
6,100.00	6,090.55	6,551.05	6,507.86	21.30	24.42	-87.14	-44.79	-2,304.32	2,342.94	2,311.78	31.17	75.174		
6,200.00	6,190.55	6,649.56	6,604.91	21.65	24.84	-87.14	-45.69	-2,287.44	2,325.79	2,294.12	31.67	73.439		
6,300.00	6,290.55	6,748.08	6,701.97	22.00	25.26	-87.14	-46.60	-2,270.56	2,308.63	2,276.46	32.17	71.757		
6,400.00	6,390.55	6,846.60	6,799.03	22.36	25.69	-87.14	-47.51	-2,253.68	2,291.47	2,258.79	32.68	70.126		
6,500.00	6,490.55	6,925.61	6,876.89	22.71	26.02	-87.14	-48.23	-2,240.28	2,274.54	2,241.38	33.16	68.603		
6,600.00	6,590.55	7,000.00	6,950.40	23.06	26.34	-87.15	-48.84	-2,228.88	2,259.08	2,225.45	33.63	67.182		
6,700.00	6,690.55	7,049.91	6,999.83	23.42	26.54	-87.15	-49.21	-2,222.03	2,245.12	2,211.06	34.06	65.924		
6,800.00	6,790.55	7,100.00	7,049.53	23.77	26.74	-87.15	-49.54	-2,215.81	2,232.89	2,198.42	34.48	64.767		
6,900.00	6,890.55	7,175.28	7,124.38	24.13	27.04	-87.15	-49.98	-2,207.68	2,222.19	2,187.25	34.93	63.612		
7,000.00	6,990.55	7,238.30	7,187.13	24.48	27.28	-87.15	-50.28	-2,202.01	2,213.17	2,177.81	35.36	62.586		
7,100.00	7,090.55	7,300.00	7,248.67	24.83	27.51	-87.15	-50.53	-2,197.46	2,205.81	2,170.03	35.78	61.648		
7,200.00	7,190.55	7,364.80	7,313.35	25.19	27.74	-87.15	-50.73	-2,193.75	2,200.09	2,163.90	36.20	60.780		
7,300.00	7,290.55	7,428.22	7,376.72	25.54	27.97	-87.15	-50.86	-2,191.18	2,196.04	2,159.43	36.60	59.995		
7,400.00	7,390.55	7,500.00	7,448.48	25.90	28.21	-87.15	-50.95	-2,189.54	2,193.66	2,156.64	37.02	59.248		
7,500.00	7,490.55	7,557.37	7,505.85	26.25	28.40	-87.15	-50.97	-2,189.19	2,192.90	2,155.51	37.40	58.640		
7,600.00	7,590.55	7,657.37	7,605.85	26.61	28.73	-87.15	-50.97	-2,189.19	2,192.90	2,155.01	37.89	57.873		
7,700.00	7,690.55	7,757.37	7,705.85	26.96	29.06	-87.15	-50.97	-2,189.19	2,192.90	2,154.51	38.39	57.126		
7,800.00	7,790.55	7,857.37	7,805.85	27.32	29.39	-87.15	-50.97	-2,189.19	2,192.90	2,154.02	38.88	56.397		
7,900.00	7,890.55	7,957.37	7,905.85	27.67	29.72	-87.15	-50.97	-2,189.19	2,192.90	2,153.52	39.38	55.687		
8,000.00	7,990.55	8,057.37	8,005.85	28.03	30.06	-87.15	-50.97	-2,189.19	2,192.90	2,153.03	39.88	54.993		
8,100.00	8,090.55	8,157.37	8,105.85	28.38	30.39	-87.15	-50.97	-2,189.19	2,192.90	2,152.53	40.37	54.317		
8,117.49	8,108.04	8,174.86	8,123.34	28.44	30.45	-87.15	-50.97	-2,189.19	2,192.90	2,152.44	40.46	54.200 CC		
8,150.00	8,140.53	8,207.35	8,155.83	28.56	30.56	93.43	-50.97	-2,189.19	2,192.96	2,152.34	40.62	53.988 ES		
8,200.00	8,190.27	8,257.08	8,205.57	28.73	30.72	93.52	-50.97	-2,189.19	2,193.26	2,152.40	40.86	53.673		
8,250.00	8,239.37	8,306.19	8,254.67	28.91	30.88	93.70	-50.97	-2,189.19	2,193.86	2,152.75	41.11	53.368		
8,300.00	8,287.48	8,354.30	8,302.78	29.09	31.04	93.95	-50.97	-2,189.19	2,194.80	2,153.45	41.35	53.073		
8,350.00	8,334.22	8,401.04	8,349.52	29.27	31.20	94.25	-50.97	-2,189.19	2,196.16	2,154.56	41.60	52.793		
8,400.00	8,379.24	8,446.06	8,394.54	29.46	31.35	94.57	-50.97	-2,189.19	2,198.01	2,156.17	41.84	52.530		
8,450.00	8,422.20	8,489.01	8,437.50	29.66	31.49	94.89	-50.97	-2,189.19	2,200.47	2,158.38	42.09	52.285		
8,500.00	8,462.76	8,529.58	8,478.06	29.86	31.63	95.19	-50.97	-2,189.19	2,203.64	2,161.31	42.33	52.062		
8,550.00	8,500.63	8,567.45	8,515.93	30.07	31.76	95.44	-50.97	-2,189.19	2,207.63	2,165.06	42.57	51.862		
8,600.00	8,535.51	8,602.32	8,550.81	30.28	31.87	95.59	-50.97	-2,189.19	2,212.55	2,169.74	42.81	51.689		
8,650.00	8,567.13	8,633.95	8,582.43	30.51	31.98	95.63	-50.97	-2,189.19	2,218.51	2,175.47	43.04	51.544		
8,700.00	8,595.26	8,662.08	8,610.56	30.75	32.07	95.52	-50.97	-2,189.19	2,225.59	2,182.32	43.27	51.429		
8,750.00	8,619.68	8,686.50	8,634.98	30.99	32.16	95.23	-50.97	-2,189.19	2,233.88	2,190.37	43.51	51.347		
8,800.00	8,640.21	8,707.03	8,655.51	31.25	32.23	94.75	-50.97	-2,189.19	2,243.41	2,199.68	43.73	51.298		
8,850.00	8,656.69	8,723.51	8,671.99	31.52	32.28	94.05	-50.97	-2,189.19	2,254.21	2,210.25	43.95	51.285		
8,900.00	8,668.99	8,735.81	8,684.29	31.80	32.32	93.12	-50.97	-2,189.19	2,266.26	2,222.09	44.17	51.307		
8,950.00	8,677.03	8,743.84	8,692.33	32.09	32.35	91.96	-50.97	-2,189.19	2,279.53	2,235.15	44.38	51.366		
9,000.00	8,680.73	8,747.55	8,696.03	32.38	32.36	90.55	-50.97	-2,189.19	2,293.94	2,249.36	44.58	51.462		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,017.49	8,681.00	8,747.81	8,696.30	32.49	32.36	90.00	-50.97	-2,189.19	2,299.22	2,254.58	44.64	51.504		
9,100.00	8,681.00	8,747.81	8,696.30	33.00	32.36	90.00	-50.97	-2,189.19	2,325.79	2,280.83	44.96	51.728		
9,200.00	8,681.00	8,747.81	8,696.30	33.70	32.36	90.00	-50.97	-2,189.19	2,361.45	2,316.08	45.37	52.045		
9,300.00	8,681.00	8,747.81	8,696.30	34.46	32.36	90.00	-50.97	-2,189.19	2,400.75	2,354.95	45.80	52.416		
9,400.00	8,681.00	8,747.81	8,696.30	35.28	32.36	90.00	-50.97	-2,189.19	2,443.52	2,397.27	46.24	52.842		
9,500.00	8,681.00	8,747.81	8,696.30	36.15	32.36	90.00	-50.97	-2,189.19	2,489.56	2,442.88	46.69	53.324		
9,600.00	8,681.00	8,747.81	8,696.30	37.08	32.36	90.00	-50.97	-2,189.19	2,538.72	2,491.58	47.13	53.864		
9,700.00	8,681.00	8,747.81	8,696.30	38.06	32.36	90.00	-50.97	-2,189.19	2,590.80	2,543.23	47.57	54.459		
9,800.00	8,681.00	8,747.81	8,696.30	39.08	32.36	90.00	-50.97	-2,189.19	2,645.64	2,597.63	48.01	55.110		
9,900.00	8,681.00	8,747.81	8,696.30	40.15	32.36	90.00	-50.97	-2,189.19	2,703.06	2,654.64	48.43	55.817		
10,000.00	8,681.00	8,747.82	8,696.30	41.25	32.36	90.00	-50.97	-2,189.19	2,762.92	2,714.08	48.84	56.576		
10,100.00	8,681.00	8,747.82	8,696.30	42.39	32.36	90.00	-50.97	-2,189.19	2,825.04	2,775.81	49.23	57.384		
10,200.00	8,681.00	8,747.82	8,696.30	43.56	32.36	90.00	-50.97	-2,189.19	2,889.30	2,839.69	49.61	58.240		
10,300.00	8,681.00	8,747.82	8,696.30	44.77	32.36	90.00	-50.97	-2,189.19	2,955.53	2,905.56	49.97	59.142		
10,400.00	8,681.00	8,747.82	8,696.30	46.00	32.36	90.00	-50.97	-2,189.19	3,023.63	2,973.31	50.32	60.088		
10,500.00	8,681.00	8,747.82	8,696.30	47.25	32.36	90.00	-50.97	-2,189.19	3,093.46	3,042.81	50.65	61.073		
10,600.00	8,681.00	8,747.82	8,696.30	48.53	32.36	90.00	-50.97	-2,189.19	3,164.91	3,113.94	50.97	62.097		
10,700.00	8,681.00	8,747.82	8,696.30	49.83	32.36	90.00	-50.97	-2,189.19	3,237.87	3,186.61	51.27	63.157		
10,800.00	8,681.00	8,747.82	8,696.30	51.16	32.36	90.00	-50.97	-2,189.19	3,312.25	3,260.69	51.55	64.252		
10,900.00	8,681.00	8,747.82	8,696.30	52.50	32.36	90.00	-50.97	-2,189.19	3,387.94	3,336.12	51.82	65.379		
11,000.00	8,681.00	8,747.82	8,696.30	53.86	32.36	90.00	-50.97	-2,189.19	3,464.86	3,412.79	52.08	66.535		
11,100.00	8,681.00	8,747.82	8,696.30	55.23	32.36	90.00	-50.97	-2,189.19	3,542.94	3,490.62	52.32	67.719		
11,200.00	8,681.00	8,747.82	8,696.30	56.62	32.36	90.00	-50.97	-2,189.19	3,622.10	3,569.55	52.55	68.927		
11,300.00	8,681.00	8,747.82	8,696.30	58.02	32.36	90.00	-50.97	-2,189.19	3,702.26	3,649.49	52.77	70.159		
11,400.00	8,681.00	8,747.82	8,696.30	59.44	32.36	90.00	-50.97	-2,189.19	3,783.37	3,730.40	52.98	71.417		
11,500.00	8,681.00	8,747.82	8,696.30	60.86	32.36	90.00	-50.97	-2,189.19	3,865.37	3,812.20	53.17	72.696		
11,600.00	8,681.00	8,747.82	8,696.30	62.30	32.36	90.00	-50.97	-2,189.19	3,948.19	3,894.84	53.36	73.994		
11,700.00	8,681.00	8,747.82	8,696.30	63.75	32.36	90.00	-50.97	-2,189.19	4,031.80	3,978.26	53.53	75.312		
11,800.00	8,681.00	8,747.82	8,696.30	65.21	32.36	90.00	-50.97	-2,189.19	4,116.13	4,062.43	53.70	76.646		
11,900.00	8,681.00	8,747.82	8,696.30	66.68	32.36	90.00	-50.97	-2,189.19	4,201.16	4,147.29	53.86	77.996		
12,000.00	8,681.00	8,747.82	8,696.30	68.15	32.36	90.00	-50.97	-2,189.19	4,286.82	4,232.81	54.02	79.361		
12,100.00	8,681.00	8,747.82	8,696.30	69.63	32.36	90.00	-50.97	-2,189.19	4,373.10	4,318.94	54.16	80.740		
12,200.00	8,681.00	8,747.82	8,696.30	71.13	32.36	90.00	-50.97	-2,189.19	4,459.95	4,405.65	54.30	82.131		
12,300.00	8,681.00	16,408.74	12,617.00	72.62	80.03	150.83	-4,036.91	-2,149.80	4,490.09	4,418.91	71.19	63.076		
12,400.00	8,681.00	16,508.74	12,617.00	74.13	81.40	150.83	-4,136.91	-2,148.81	4,490.08	4,417.65	72.43	61.992		
12,500.00	8,681.00	16,608.74	12,617.00	75.64	82.77	150.83	-4,236.90	-2,147.82	4,490.08	4,416.39	73.68	60.937		
12,600.00	8,681.00	16,708.74	12,617.00	77.15	84.16	150.83	-4,336.90	-2,146.83	4,490.07	4,415.12	74.95	59.911		
12,700.00	8,681.00	16,808.74	12,617.00	78.68	85.56	150.83	-4,436.89	-2,145.84	4,490.06	4,413.85	76.21	58.913		
12,800.00	8,681.00	16,908.74	12,617.00	80.20	86.96	150.83	-4,536.89	-2,144.86	4,490.05	4,412.56	77.49	57.942		
12,900.00	8,681.00	17,008.74	12,617.00	81.74	88.38	150.83	-4,636.88	-2,143.87	4,490.05	4,411.27	78.78	56.998		
13,000.00	8,681.00	17,108.74	12,617.00	83.27	89.80	150.83	-4,736.88	-2,142.88	4,490.04	4,409.97	80.07	56.079		
13,100.00	8,681.00	17,208.74	12,617.00	84.81	91.23	150.83	-4,836.87	-2,141.89	4,490.03	4,408.67	81.36	55.185		
13,200.00	8,681.00	17,308.74	12,617.00	86.36	92.66	150.83	-4,936.87	-2,140.90	4,490.02	4,407.35	82.67	54.314		
13,300.00	8,681.00	17,408.74	12,617.00	87.91	94.11	150.83	-5,036.86	-2,139.92	4,490.01	4,406.04	83.98	53.467		
13,400.00	8,681.00	17,508.74	12,617.00	89.46	95.56	150.83	-5,136.86	-2,138.93	4,490.01	4,404.71	85.29	52.643		
13,500.00	8,681.00	17,608.74	12,617.00	91.01	97.02	150.83	-5,236.85	-2,137.94	4,490.00	4,403.39	86.61	51.842		
13,600.00	8,681.00	17,708.74	12,617.00	92.57	98.48	150.83	-5,336.85	-2,136.95	4,489.99	4,402.06	87.93	51.063		
13,700.00	8,681.00	17,808.74	12,617.00	94.13	99.95	150.83	-5,436.84	-2,135.96	4,489.98	4,400.73	89.26	50.304		
13,800.00	8,681.00	17,908.74	12,617.00	95.70	101.43	150.83	-5,536.84	-2,134.97	4,489.98	4,399.39	90.59	49.564		
13,900.00	8,681.00	18,008.74	12,617.00	97.27	102.91	150.83	-5,636.83	-2,133.99	4,489.97	4,398.04	91.93	48.842		
14,000.00	8,681.00	18,108.74	12,617.00	98.84	104.39	150.83	-5,736.83	-2,133.00	4,489.96	4,396.69	93.27	48.139		
14,100.00	8,681.00	18,208.74	12,617.00	100.41	105.88	150.83	-5,836.82	-2,132.01	4,489.95	4,395.34	94.61	47.456		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 802H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,200.00	8,681.00	18,308.74	12,617.00	101.99	107.38	150.83	-5,936.82	-2,131.02	4,489.94	4,393.98	95.96	46.790				
14,300.00	8,681.00	18,408.74	12,617.00	103.57	108.88	150.83	-6,036.81	-2,130.03	4,489.94	4,392.63	97.31	46.140				
14,400.00	8,681.00	18,508.74	12,617.00	105.15	110.38	150.84	-6,136.81	-2,129.04	4,489.93	4,391.26	98.66	45.507				
14,500.00	8,681.00	18,608.74	12,617.00	106.73	111.89	150.84	-6,236.80	-2,128.06	4,489.92	4,389.90	100.02	44.890				
14,600.00	8,681.00	18,708.74	12,617.00	108.31	113.40	150.84	-6,336.80	-2,127.07	4,489.91	4,388.53	101.38	44.287				
14,700.00	8,681.00	18,808.74	12,617.00	109.90	114.92	150.84	-6,436.79	-2,126.08	4,489.90	4,387.16	102.75	43.699				
14,800.00	8,681.00	18,908.74	12,617.00	111.49	116.44	150.84	-6,536.79	-2,125.09	4,489.90	4,385.79	104.11	43.126				
14,900.00	8,681.00	19,008.74	12,617.00	113.08	117.96	150.84	-6,636.79	-2,124.10	4,489.89	4,384.41	105.48	42.566				
15,000.00	8,681.00	19,108.74	12,617.00	114.67	119.49	150.84	-6,736.78	-2,123.12	4,489.88	4,383.03	106.85	42.019				
15,100.00	8,681.00	19,208.74	12,617.00	116.27	121.02	150.84	-6,836.78	-2,122.13	4,489.87	4,381.65	108.23	41.485				
15,200.00	8,681.00	19,308.74	12,617.00	117.86	122.55	150.84	-6,936.77	-2,121.14	4,489.87	4,380.26	109.60	40.964				
15,300.00	8,681.00	19,408.74	12,617.00	119.46	124.08	150.84	-7,036.77	-2,120.15	4,489.86	4,378.88	110.98	40.456				
15,400.00	8,681.00	19,508.74	12,617.00	121.06	125.62	150.84	-7,136.76	-2,119.16	4,489.85	4,377.49	112.36	39.960				
15,500.00	8,681.00	19,608.74	12,617.00	122.66	127.16	150.84	-7,236.76	-2,118.17	4,489.84	4,376.10	113.74	39.474				
15,600.00	8,681.00	19,708.74	12,617.00	124.26	128.71	150.84	-7,336.75	-2,117.19	4,489.83	4,374.71	115.13	38.999				
15,700.00	8,681.00	19,808.74	12,617.00	125.86	130.26	150.84	-7,436.75	-2,116.20	4,489.83	4,373.31	116.51	38.535				
15,800.00	8,681.00	19,908.74	12,617.00	127.46	131.81	150.84	-7,536.74	-2,115.21	4,489.82	4,371.92	117.90	38.081				
15,900.00	8,681.00	20,008.74	12,617.00	129.07	133.36	150.84	-7,636.74	-2,114.22	4,489.81	4,370.52	119.29	37.638				
16,000.00	8,681.00	20,108.74	12,617.00	130.67	134.91	150.84	-7,736.73	-2,113.23	4,489.80	4,369.12	120.68	37.204				
16,100.00	8,681.00	20,208.74	12,617.00	132.28	136.47	150.84	-7,836.73	-2,112.24	4,489.80	4,367.72	122.07	36.780				
16,200.00	8,681.00	20,308.74	12,617.00	133.89	138.03	150.84	-7,936.72	-2,111.26	4,489.79	4,366.32	123.47	36.364				
16,300.00	8,681.00	20,408.74	12,617.00	135.50	139.59	150.84	-8,036.72	-2,110.27	4,489.78	4,364.92	124.86	35.958				
16,400.00	8,681.00	20,508.74	12,617.00	137.11	141.15	150.84	-8,136.71	-2,109.28	4,489.77	4,363.51	126.26	35.560				
16,500.00	8,681.00	20,608.74	12,617.00	138.72	142.72	150.84	-8,236.71	-2,108.29	4,489.76	4,362.11	127.66	35.170				
16,600.00	8,681.00	20,708.74	12,617.00	140.33	144.29	150.84	-8,336.70	-2,107.30	4,489.76	4,360.70	129.06	34.789				
16,700.00	8,681.00	20,808.74	12,617.00	141.95	145.85	150.84	-8,436.70	-2,106.32	4,489.75	4,359.29	130.46	34.415				
16,800.00	8,681.00	20,908.74	12,617.00	143.56	147.42	150.84	-8,536.69	-2,105.33	4,489.74	4,357.88	131.86	34.049				
16,900.00	8,681.00	21,008.74	12,617.00	145.17	149.00	150.84	-8,636.69	-2,104.34	4,489.73	4,356.47	133.26	33.690				
17,000.00	8,681.00	21,108.74	12,617.00	146.79	150.57	150.84	-8,736.68	-2,103.35	4,489.73	4,355.06	134.67	33.339				
17,100.00	8,681.00	21,208.74	12,617.00	148.41	152.15	150.84	-8,836.68	-2,102.36	4,489.72	4,353.65	136.07	32.995				
17,200.00	8,681.00	21,308.74	12,617.00	150.02	153.72	150.84	-8,936.67	-2,101.37	4,489.71	4,352.23	137.48	32.658				
17,300.00	8,681.00	21,408.74	12,617.00	151.64	155.30	150.84	-9,036.67	-2,100.39	4,489.70	4,350.82	138.88	32.327				
17,400.00	8,681.00	21,508.74	12,617.00	153.26	156.88	150.84	-9,136.66	-2,099.40	4,489.69	4,349.40	140.29	32.002				
17,500.00	8,681.00	21,608.74	12,617.00	154.88	158.47	150.84	-9,236.66	-2,098.41	4,489.69	4,347.98	141.70	31.684				
17,600.00	8,681.00	21,708.74	12,617.00	156.50	160.05	150.84	-9,336.65	-2,097.42	4,489.68	4,346.57	143.11	31.372				
17,700.00	8,681.00	21,808.74	12,617.00	158.12	161.63	150.84	-9,436.65	-2,096.43	4,489.67	4,345.15	144.52	31.065				
17,800.00	8,681.00	21,908.74	12,617.00	159.74	163.22	150.84	-9,536.64	-2,095.44	4,489.66	4,343.73	145.93	30.765				
17,900.00	8,681.00	22,008.74	12,617.00	161.36	164.81	150.84	-9,636.64	-2,094.46	4,489.65	4,342.31	147.34	30.471				
18,000.00	8,681.00	22,108.74	12,617.00	162.99	166.40	150.84	-9,736.63	-2,093.47	4,489.65	4,340.89	148.76	30.181				
18,100.00	8,681.00	22,208.74	12,617.00	164.61	167.99	150.84	-9,836.63	-2,092.48	4,489.64	4,339.47	150.17	29.897				
18,200.00	8,681.00	22,308.74	12,617.00	166.23	169.58	150.84	-9,936.62	-2,091.49	4,489.63	4,338.05	151.58	29.618				
18,300.00	8,681.00	22,408.74	12,617.00	167.86	171.17	150.84	-10,036.62	-2,090.50	4,489.62	4,336.62	153.00	29.344				
18,400.00	8,681.00	22,508.74	12,617.00	169.48	172.76	150.84	-10,136.61	-2,089.51	4,489.62	4,335.20	154.42	29.075				
18,500.00	8,681.00	22,608.74	12,617.00	171.11	174.36	150.84	-10,236.61	-2,088.53	4,489.61	4,333.78	155.83	28.811				
18,600.00	8,681.00	22,708.74	12,617.00	172.73	175.94	150.84	-10,336.60	-2,087.54	4,489.60	4,332.37	157.23	28.555				
18,675.36	8,681.00	22,784.10	12,617.00	173.96	177.02	150.84	-10,411.96	-2,086.79	4,489.59	4,331.46	158.14	28.390				
18,681.03	8,681.00	22,787.51	12,617.00	174.05	177.07	150.84	-10,415.37	-2,086.76	4,489.59	4,331.40	158.19	28.380 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	89.42	9.78	964.79	965.19					
100.00	100.00	74.00	74.00	0.13	0.09	89.42	9.78	964.79	964.84	964.68	0.16	6,181.621		
200.00	200.00	174.00	174.00	0.48	0.39	89.42	9.78	964.79	964.84	964.22	0.62	1,551.221		
300.00	300.00	274.00	274.00	0.84	0.75	89.42	9.78	964.79	964.84	963.71	1.13	855.833		
400.00	400.00	374.00	374.00	1.20	1.11	89.42	9.78	964.79	964.84	963.21	1.63	590.576		
500.00	500.00	474.00	474.00	1.56	1.47	89.42	9.78	964.79	964.84	962.70	2.14	450.782		
600.00	600.00	574.00	574.00	1.92	1.82	89.42	9.78	964.79	964.84	962.19	2.65	364.486		
700.00	700.00	674.00	674.00	2.28	2.18	89.42	9.78	964.79	964.84	961.69	3.15	305.915		
800.00	800.00	774.00	774.00	2.63	2.54	89.42	9.78	964.79	964.84	961.18	3.66	263.559		
900.00	900.00	874.00	874.00	2.99	2.90	89.42	9.78	964.79	964.84	960.67	4.17	231.504		
1,000.00	1,000.00	974.00	974.00	3.35	3.26	89.42	9.78	964.79	964.84	960.16	4.67	206.401		
1,100.00	1,100.00	1,074.00	1,074.00	3.71	3.62	89.42	9.78	964.79	964.84	959.66	5.18	186.208		
1,200.00	1,200.00	1,174.00	1,174.00	4.07	3.98	89.42	9.78	964.79	964.84	959.15	5.69	169.615		
1,300.00	1,300.00	1,274.00	1,274.00	4.43	4.33	89.42	9.78	964.79	964.84	958.64	6.20	155.736		
1,400.00	1,400.00	1,374.00	1,374.00	4.79	4.69	89.42	9.78	964.79	964.84	958.14	6.70	143.957		
1,500.00	1,500.00	1,474.00	1,474.00	5.14	5.05	89.42	9.78	964.79	964.84	957.63	7.21	133.834		
1,600.00	1,600.00	1,574.00	1,574.00	5.50	5.41	89.42	9.78	964.79	964.84	957.12	7.72	125.042		
1,700.00	1,700.00	1,674.00	1,674.00	5.86	5.77	89.42	9.78	964.79	964.84	956.62	8.22	117.333		
1,800.00	1,800.00	1,774.00	1,774.00	6.22	6.13	89.42	9.78	964.79	964.84	956.11	8.73	110.520		
1,900.00	1,900.00	1,874.00	1,874.00	6.58	6.48	89.42	9.78	964.79	964.84	955.60	9.24	104.454		
2,000.00	2,000.00	1,974.00	1,974.00	6.94	6.84	89.42	9.78	964.79	964.84	955.10	9.74	99.020		
2,100.00	2,100.00	2,074.00	2,074.00	7.29	7.20	89.42	9.78	964.79	964.84	954.59	10.25	94.123		
2,200.00	2,200.00	2,174.00	2,174.00	7.65	7.56	89.42	9.78	964.79	964.84	954.08	10.76	89.687		
2,300.00	2,300.00	2,274.00	2,274.00	8.01	7.92	89.42	9.78	964.79	964.84	953.57	11.26	85.651		
2,400.00	2,400.00	2,374.00	2,374.00	8.37	8.28	89.42	9.78	964.79	964.84	953.07	11.77	81.963		
2,500.00	2,500.00	2,474.00	2,474.00	8.73	8.64	89.42	9.78	964.79	964.84	952.56	12.28	78.579		
2,600.00	2,600.00	2,574.00	2,574.00	9.09	8.99	89.42	9.78	964.79	964.84	952.05	12.79	75.463		
2,700.00	2,700.00	2,674.00	2,674.00	9.45	9.35	89.42	9.78	964.79	964.84	951.55	13.29	72.585		
2,800.00	2,800.00	2,774.00	2,774.00	9.80	9.71	89.42	9.78	964.79	964.84	951.04	13.80	69.919		
2,900.00	2,900.00	2,874.00	2,874.00	10.16	10.07	89.42	9.78	964.79	964.84	950.53	14.31	67.441		
3,000.00	3,000.00	2,974.00	2,974.00	10.52	10.43	89.42	9.78	964.79	964.84	950.03	14.81	65.133		
3,100.00	3,099.99	3,073.99	3,073.99	10.86	10.79	-90.30	9.78	964.79	964.85	949.54	15.31	63.033		
3,200.00	3,199.91	3,173.91	3,173.91	11.18	11.14	-90.53	9.78	964.79	964.87	949.09	15.79	61.113		
3,300.00	3,299.69	3,273.69	3,273.69	11.51	11.50	-90.92	9.78	964.79	964.96	948.69	16.27	59.306		
3,400.00	3,399.27	3,397.97	3,397.96	11.84	11.94	-91.61	9.67	963.54	964.21	947.40	16.81	57.373		
3,500.00	3,498.57	3,530.60	3,530.46	12.17	12.39	-92.58	9.17	957.86	960.31	942.98	17.34	55.389		
3,533.06	3,531.33	3,574.27	3,574.03	12.28	12.54	-92.95	8.92	954.99	958.33	940.82	17.51	54.731		
3,600.00	3,597.62	3,662.44	3,661.90	12.50	12.84	-93.68	8.28	947.67	953.25	935.39	17.85	53.393		
3,700.00	3,696.65	3,769.63	3,768.52	12.85	13.22	-94.57	7.33	936.75	943.91	925.57	18.34	51.468		
3,800.00	3,795.68	3,868.24	3,866.60	13.19	13.56	-95.41	6.44	926.56	934.65	915.83	18.82	49.655		
3,900.00	3,894.70	3,966.85	3,964.68	13.54	13.91	-96.26	5.55	916.38	925.60	906.29	19.31	47.935		
4,000.00	3,993.73	4,065.46	4,062.76	13.90	14.26	-97.13	4.66	906.19	916.76	896.96	19.80	46.300		
4,100.00	4,092.76	4,164.07	4,160.84	14.26	14.61	-98.01	3.77	896.00	908.14	887.84	20.29	44.749		
4,149.39	4,141.67	4,212.78	4,209.28	14.44	14.79	-98.46	3.33	890.97	903.96	883.42	20.54	44.011		
4,200.00	4,191.83	4,262.72	4,258.96	14.62	14.97	-98.83	2.88	885.81	899.69	878.90	20.79	43.273		
4,300.00	4,291.19	4,361.64	4,357.34	14.98	15.32	-99.46	1.99	875.59	891.08	869.79	21.29	41.858		
4,400.00	4,390.81	4,460.79	4,455.96	15.34	15.68	-99.94	1.09	865.35	882.17	860.38	21.78	40.496		
4,500.00	4,490.62	4,560.12	4,554.75	15.69	16.04	-100.25	0.20	855.09	872.88	850.60	22.28	39.182		
4,600.00	4,590.56	4,659.55	4,653.64	16.04	16.41	-100.40	-0.70	844.81	863.17	840.40	22.77	37.911		
4,682.45	4,673.00	4,741.55	4,735.21	16.32	16.71	79.25	-1.44	836.34	854.82	831.65	23.17	36.889		
4,700.00	4,690.55	4,759.01	4,752.57	16.38	16.77	79.24	-1.60	834.54	853.01	829.75	23.26	36.674		
4,800.00	4,790.55	4,858.47	4,851.49	16.73	17.14	79.17	-2.49	824.26	842.69	818.94	23.75	35.478		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 805H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre	Between	Between	Minimum	Separation					
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor				
4,900.00	4,890.55	4,957.93	4,950.42	17.08	17.51	79.10	-3.39	813.99	832.38	808.13	24.25	34.330				
5,000.00	4,990.55	5,057.39	5,049.34	17.43	17.87	79.02	-4.29	803.71	822.06	797.32	24.74	33.227				
5,100.00	5,090.55	5,156.85	5,148.27	17.78	18.24	78.95	-5.19	793.44	811.75	786.51	25.24	32.167				
5,200.00	5,190.55	5,256.31	5,247.19	18.13	18.61	78.87	-6.08	783.16	801.43	775.70	25.73	31.147				
5,300.00	5,290.55	5,355.77	5,346.12	18.48	18.98	78.79	-6.98	772.89	791.12	764.90	26.23	30.165				
5,400.00	5,390.55	5,455.23	5,445.04	18.83	19.36	78.70	-7.88	762.61	780.81	754.09	26.72	29.218				
5,500.00	5,490.55	5,554.70	5,543.96	19.19	19.73	78.62	-8.78	752.34	770.51	743.29	27.22	28.306				
5,600.00	5,590.55	5,654.16	5,642.89	19.54	20.10	78.53	-9.67	742.06	760.20	732.48	27.72	27.426				
5,700.00	5,690.55	5,753.62	5,741.81	19.89	20.48	78.44	-10.57	731.79	749.90	721.68	28.22	26.577				
5,800.00	5,790.55	5,853.08	5,840.74	20.24	20.85	78.35	-11.47	721.51	739.60	710.88	28.71	25.757				
5,900.00	5,890.55	5,952.54	5,939.66	20.59	21.23	78.26	-12.37	711.23	729.30	700.08	29.21	24.965				
6,000.00	5,990.55	6,052.00	6,038.59	20.95	21.61	78.16	-13.26	700.96	719.00	689.28	29.71	24.199				
6,100.00	6,090.55	6,151.46	6,137.51	21.30	21.98	78.06	-14.16	690.68	708.70	678.49	30.21	23.458				
6,200.00	6,190.55	6,250.92	6,236.44	21.65	22.36	77.96	-15.06	680.41	698.41	667.69	30.71	22.741				
6,300.00	6,290.55	6,350.38	6,335.36	22.00	22.74	77.85	-15.96	670.13	688.12	656.90	31.21	22.046				
6,400.00	6,390.55	6,449.84	6,434.29	22.36	23.12	77.74	-16.85	659.86	677.83	646.11	31.71	21.374				
6,500.00	6,490.55	6,549.30	6,533.21	22.71	23.50	77.63	-17.75	649.58	667.54	635.33	32.21	20.722				
6,600.00	6,590.55	6,648.76	6,632.13	23.06	23.88	77.51	-18.65	639.31	657.26	624.54	32.72	20.090				
6,700.00	6,690.55	6,748.23	6,731.06	23.42	24.26	77.39	-19.55	629.03	646.97	613.76	33.22	19.477				
6,800.00	6,790.55	6,847.69	6,829.98	23.77	24.64	77.27	-20.44	618.76	636.70	602.98	33.72	18.883				
6,900.00	6,890.55	6,947.15	6,928.91	24.13	25.02	77.14	-21.34	608.48	626.42	592.20	34.22	18.305				
7,000.00	6,990.55	7,046.61	7,027.83	24.48	25.40	77.01	-22.24	598.21	616.15	581.42	34.72	17.745				
7,100.00	7,090.55	7,142.95	7,123.66	24.83	25.77	76.88	-23.10	588.30	605.94	570.71	35.23	17.200				
7,200.00	7,190.55	7,229.13	7,209.51	25.19	26.09	76.78	-23.76	580.81	597.30	561.56	35.74	16.714				
7,300.00	7,290.55	7,315.61	7,295.81	25.54	26.41	76.70	-24.24	575.23	590.89	554.66	36.23	16.310				
7,400.00	7,390.55	7,400.00	7,380.12	25.90	26.72	76.65	-24.56	571.66	586.72	550.02	36.70	15.987				
7,500.00	7,490.55	7,489.11	7,469.21	26.25	27.03	76.62	-24.71	569.91	584.80	547.63	37.17	15.734				
7,551.64	7,542.19	7,536.09	7,516.19	26.44	27.19	76.62	-24.72	569.79	584.66	547.25	37.41	15.629				
7,600.00	7,590.55	7,584.45	7,564.55	26.61	27.36	76.62	-24.72	569.79	584.66	547.01	37.65	15.529				
7,700.00	7,690.55	7,684.45	7,664.55	26.96	27.70	76.62	-24.72	569.79	584.66	546.51	38.15	15.326				
7,800.00	7,790.55	7,784.45	7,764.55	27.32	28.04	76.62	-24.72	569.79	584.66	546.01	38.65	15.128				
7,900.00	7,890.55	7,884.45	7,864.55	27.67	28.39	76.62	-24.72	569.79	584.66	545.51	39.15	14.935				
8,000.00	7,990.55	7,984.45	7,964.55	28.03	28.73	76.62	-24.72	569.79	584.66	545.01	39.64	14.747				
8,100.00	8,090.55	8,084.45	8,064.55	28.38	29.08	76.62	-24.72	569.79	584.66	544.51	40.14	14.564				
8,117.49	8,108.04	8,101.94	8,082.04	28.44	29.14	76.62	-24.72	569.79	584.66	544.42	40.23	14.532 CC, ES				
8,150.00	8,140.53	8,134.43	8,114.53	28.56	29.25	-102.89	-24.72	569.79	584.86	544.47	40.39	14.480				
8,200.00	8,190.27	8,184.17	8,164.27	28.73	29.42	-103.25	-24.72	569.79	586.00	545.36	40.64	14.420				
8,250.00	8,239.37	8,233.27	8,213.37	28.91	29.59	-103.91	-24.72	569.79	588.23	547.34	40.89	14.387				
8,300.00	8,287.48	8,281.38	8,261.48	29.09	29.75	-104.80	-24.72	569.79	591.72	550.59	41.14	14.385 SF				
8,350.00	8,334.22	8,328.12	8,308.22	29.27	29.92	-105.86	-24.72	569.79	596.71	555.33	41.38	14.419				
8,400.00	8,379.24	8,373.14	8,353.24	29.46	30.07	-107.01	-24.72	569.79	603.48	561.85	41.63	14.496				
8,450.00	8,422.20	8,416.10	8,396.20	29.66	30.22	-108.16	-24.72	569.79	612.34	570.47	41.88	14.623				
8,500.00	8,462.76	8,456.66	8,436.76	29.86	30.36	-109.20	-24.72	569.79	623.60	581.48	42.12	14.806				
8,550.00	8,500.63	8,494.53	8,474.63	30.07	30.49	-110.03	-24.72	569.79	637.52	595.17	42.35	15.053				
8,600.00	8,535.51	8,529.41	8,509.51	30.28	30.61	-110.56	-24.72	569.79	654.33	611.75	42.58	15.367				
8,650.00	8,567.13	8,561.03	8,541.13	30.51	30.72	-110.69	-24.72	569.79	674.18	631.38	42.79	15.754				
8,700.00	8,595.26	8,589.16	8,569.26	30.75	30.82	-110.32	-24.72	569.79	697.11	654.12	42.99	16.214				
8,750.00	8,619.68	8,613.58	8,593.68	30.99	30.90	-109.35	-24.72	569.79	723.09	679.91	43.18	16.748				
8,800.00	8,640.21	8,634.11	8,614.21	31.25	30.97	-107.68	-24.72	569.79	751.98	708.65	43.34	17.352				
8,850.00	8,656.69	8,650.59	8,630.69	31.52	31.03	-105.20	-24.72	569.79	783.58	740.10	43.48	18.023				
8,900.00	8,668.99	8,662.89	8,642.99	31.80	31.07	-101.82	-24.72	569.79	817.57	773.98	43.59	18.755				
8,950.00	8,677.03	8,670.93	8,651.03	32.09	31.10	-97.46	-24.72	569.79	853.63	809.94	43.68	19.541				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 805H - OH - Plan #2		Offset Site Error:		0.00 usft	
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation						
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Centres (usft)	Ellipses (usft)	Separation (usft)	Factor						
9,000.00	8,680.73	8,674.63	8,654.73	32.38	31.12	-92.10	-24.72	569.79	891.35	847.60	43.75	20.372						
9,017.49	8,681.00	8,674.90	8,655.00	32.49	31.12	-90.00	-24.72	569.79	904.86	861.09	43.77	20.672						
9,100.00	8,681.00	8,674.90	8,655.00	33.00	31.12	-90.00	-24.72	569.79	970.33	926.49	43.85	22.129						
9,200.00	8,681.00	8,674.90	8,655.00	33.70	31.12	-90.00	-24.72	569.79	1,052.90	1,008.97	43.93	23.969						
9,300.00	8,681.00	8,674.90	8,655.00	34.46	31.12	-90.00	-24.72	569.79	1,138.26	1,094.27	43.99	25.873						
9,400.00	8,681.00	8,674.90	8,655.00	35.28	31.12	-90.00	-24.72	569.79	1,225.84	1,181.79	44.05	27.829						
9,500.00	8,681.00	8,674.90	8,655.00	36.15	31.12	-90.00	-24.72	569.79	1,315.19	1,271.09	44.10	29.825						
9,600.00	8,681.00	8,674.90	8,655.00	37.08	31.12	-90.00	-24.72	569.79	1,405.97	1,361.83	44.14	31.853						
9,700.00	8,681.00	8,674.90	8,655.00	38.06	31.12	-90.00	-24.72	569.79	1,497.93	1,453.76	44.18	33.908						
9,800.00	8,681.00	8,674.90	8,655.00	39.08	31.12	-90.00	-24.72	569.79	1,590.86	1,546.65	44.21	35.984						
9,900.00	8,681.00	8,674.90	8,655.00	40.15	31.12	-90.00	-24.72	569.79	1,684.60	1,640.36	44.24	38.078						
10,000.00	8,681.00	8,674.90	8,655.00	41.25	31.12	-90.00	-24.72	569.79	1,779.03	1,734.76	44.27	40.186						
10,100.00	8,681.00	8,674.90	8,655.00	42.39	31.12	-90.00	-24.72	569.79	1,874.03	1,829.73	44.30	42.306						
10,200.00	8,681.00	8,674.90	8,655.00	43.56	31.12	-90.00	-24.72	569.79	1,969.52	1,925.20	44.32	44.436						
10,300.00	8,681.00	8,674.90	8,655.00	44.77	31.12	-90.00	-24.72	569.79	2,065.44	2,021.10	44.35	46.574						
10,400.00	8,681.00	8,674.90	8,655.00	46.00	31.12	-90.00	-24.72	569.79	2,161.74	2,117.36	44.37	48.719						
10,500.00	8,681.00	8,674.90	8,655.00	47.25	31.12	-90.00	-24.72	569.79	2,258.35	2,213.95	44.40	50.869						
10,600.00	8,681.00	8,674.90	8,655.00	48.53	31.12	-90.00	-24.72	569.79	2,355.25	2,310.83	44.42	53.024						
10,700.00	8,681.00	8,674.90	8,655.00	49.83	31.12	-90.00	-24.72	569.79	2,452.39	2,407.95	44.44	55.182						
10,800.00	8,681.00	8,674.90	8,655.00	51.16	31.12	-90.00	-24.72	569.79	2,549.76	2,505.29	44.46	57.343						
10,900.00	8,681.00	8,674.90	8,655.00	52.50	31.12	-90.00	-24.72	569.79	2,647.32	2,602.83	44.49	59.506						
11,000.00	8,681.00	8,674.90	8,655.00	53.86	31.12	-90.00	-24.72	569.79	2,745.06	2,700.55	44.51	61.671						
11,100.00	8,681.00	8,674.90	8,655.00	55.23	31.12	-90.00	-24.72	569.79	2,842.96	2,798.42	44.53	63.837						
11,200.00	8,681.00	8,674.90	8,655.00	56.62	31.12	-90.00	-24.72	569.79	2,940.99	2,896.43	44.56	66.003						
11,300.00	8,681.00	8,674.90	8,655.00	58.02	31.12	-90.00	-24.72	569.79	3,039.16	2,994.58	44.58	68.169						
11,400.00	8,681.00	8,674.90	8,655.00	59.44	31.12	-90.00	-24.72	569.79	3,137.44	3,092.83	44.61	70.335						
11,500.00	8,681.00	8,674.90	8,655.00	60.86	31.12	-90.00	-24.72	569.79	3,235.83	3,191.19	44.63	72.500						
11,600.00	8,681.00	8,674.90	8,655.00	62.30	31.12	-90.00	-24.72	569.79	3,334.31	3,289.65	44.66	74.665						
11,700.00	8,681.00	8,674.90	8,655.00	63.75	31.12	-90.00	-24.72	569.79	3,432.88	3,388.20	44.68	76.828						
11,800.00	8,681.00	8,674.90	8,655.00	65.21	31.12	-90.00	-24.72	569.79	3,531.53	3,486.82	44.71	78.989						
11,900.00	8,681.00	8,674.90	8,655.00	66.68	31.12	-90.00	-24.72	569.79	3,630.25	3,585.52	44.74	81.149						
12,000.00	8,681.00	8,674.90	8,655.00	68.15	31.12	-90.00	-24.72	569.79	3,729.05	3,684.28	44.76	83.307						
12,100.00	8,681.00	8,674.90	8,655.00	69.63	31.12	-90.00	-24.72	569.79	3,827.90	3,783.11	44.79	85.462						
12,200.00	8,681.00	16,161.15	12,502.00	71.13	77.97	-171.57	-3,909.70	607.88	3,889.06	3,835.17	53.89	72.167						
12,300.00	8,681.00	16,261.15	12,502.00	72.62	79.33	-171.57	-4,009.69	608.86	3,889.06	3,834.24	54.81	70.949						
12,400.00	8,681.00	16,361.15	12,502.00	74.13	80.71	-171.57	-4,109.69	609.84	3,889.06	3,833.31	55.75	69.762						
12,500.00	8,681.00	16,461.15	12,502.00	75.64	82.09	-171.57	-4,209.68	610.82	3,889.06	3,832.37	56.69	68.604						
12,600.00	8,681.00	16,561.15	12,502.00	77.15	83.49	-171.57	-4,309.68	611.80	3,889.06	3,831.42	57.64	67.475						
12,700.00	8,681.00	16,661.15	12,502.00	78.68	84.89	-171.57	-4,409.67	612.78	3,889.06	3,830.47	58.59	66.375						
12,800.00	8,681.00	16,761.15	12,502.00	80.20	86.31	-171.57	-4,509.67	613.76	3,889.06	3,829.51	59.55	65.305						
12,900.00	8,681.00	16,861.15	12,502.00	81.74	87.73	-171.57	-4,609.67	614.74	3,889.06	3,828.54	60.52	64.261						
13,000.00	8,681.00	16,961.15	12,502.00	83.27	89.16	-171.57	-4,709.66	615.72	3,889.07	3,827.57	61.49	63.244						
13,100.00	8,681.00	17,061.15	12,502.00	84.81	90.59	-171.57	-4,809.66	616.70	3,889.07	3,826.60	62.47	62.253						
13,200.00	8,681.00	17,161.15	12,502.00	86.36	92.04	-171.57	-4,909.65	617.68	3,889.07	3,825.61	63.46	61.287						
13,300.00	8,681.00	17,261.15	12,502.00	87.91	93.49	-171.56	-5,009.65	618.66	3,889.07	3,824.62	64.45	60.346						
13,400.00	8,681.00	17,361.15	12,502.00	89.46	94.95	-171.56	-5,109.64	619.64	3,889.07	3,823.63	65.44	59.429						
13,500.00	8,681.00	17,461.15	12,502.00	91.01	96.41	-171.56	-5,209.64	620.62	3,889.07	3,822.63	66.44	58.534						
13,600.00	8,681.00	17,561.15	12,502.00	92.57	97.88	-171.56	-5,309.63	621.60	3,889.07	3,821.63	67.45	57.662						
13,700.00	8,681.00	17,661.15	12,502.00	94.13	99.36	-171.56	-5,409.63	622.58	3,889.07	3,820.62	68.46	56.812						
13,800.00	8,681.00	17,761.15	12,502.00	95.70	100.84	-171.56	-5,509.62	623.56	3,889.08	3,819.61	69.47	55.983						
13,900.00	8,681.00	17,861.15	12,502.00	97.27	102.32	-171.56	-5,609.62	624.54	3,889.08	3,818.59	70.49	55.174						
14,000.00	8,681.00	17,961.15	12,502.00	98.84	103.82	-171.56	-5,709.61	625.52	3,889.08	3,817.57	71.51	54.386						

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 805H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
14,100.00	8,681.00	18,061.15	12,502.00	100.41	105.31	-171.56	-5,809.61	626.50	3,889.08	3,816.54	72.53	53.617				
14,200.00	8,681.00	18,161.15	12,502.00	101.99	106.81	-171.56	-5,909.60	627.48	3,889.08	3,815.52	73.56	52.867				
14,300.00	8,681.00	18,261.15	12,502.00	103.57	108.32	-171.56	-6,009.60	628.46	3,889.08	3,814.49	74.60	52.135				
14,400.00	8,681.00	18,361.15	12,502.00	105.15	109.83	-171.56	-6,109.59	629.44	3,889.08	3,813.45	75.63	51.421				
14,500.00	8,681.00	18,461.15	12,502.00	106.73	111.34	-171.56	-6,209.59	630.42	3,889.08	3,812.41	76.67	50.725				
14,600.00	8,681.00	18,561.15	12,502.00	108.31	112.86	-171.56	-6,309.58	631.40	3,889.08	3,811.37	77.71	50.046				
14,700.00	8,681.00	18,661.15	12,502.00	109.90	114.38	-171.56	-6,409.58	632.38	3,889.09	3,810.33	78.75	49.383				
14,800.00	8,681.00	18,761.15	12,502.00	111.49	115.90	-171.56	-6,509.57	633.36	3,889.09	3,809.29	79.80	48.736				
14,900.00	8,681.00	18,861.15	12,502.00	113.08	117.43	-171.56	-6,609.57	634.34	3,889.09	3,808.24	80.85	48.104				
15,000.00	8,681.00	18,961.15	12,502.00	114.67	118.96	-171.56	-6,709.56	635.33	3,889.09	3,807.19	81.90	47.486				
15,100.00	8,681.00	19,061.15	12,502.00	116.27	120.50	-171.56	-6,809.56	636.31	3,889.09	3,806.14	82.95	46.882				
15,200.00	8,681.00	19,161.15	12,502.00	117.86	122.03	-171.56	-6,909.55	637.29	3,889.09	3,805.08	84.01	46.292				
15,300.00	8,681.00	19,261.15	12,502.00	119.46	123.57	-171.56	-7,009.55	638.27	3,889.09	3,804.02	85.07	45.716				
15,400.00	8,681.00	19,361.15	12,502.00	121.06	125.12	-171.56	-7,109.55	639.25	3,889.09	3,802.96	86.13	45.152				
15,500.00	8,681.00	19,461.15	12,502.00	122.66	126.66	-171.56	-7,209.54	640.23	3,889.10	3,801.90	87.19	44.602				
15,600.00	8,681.00	19,561.15	12,502.00	124.26	128.21	-171.56	-7,309.54	641.21	3,889.10	3,800.84	88.26	44.065				
15,700.00	8,681.00	19,661.15	12,502.00	125.86	129.76	-171.56	-7,409.53	642.19	3,889.10	3,799.77	89.33	43.539				
15,800.00	8,681.00	19,761.15	12,502.00	127.46	131.32	-171.56	-7,509.53	643.17	3,889.10	3,798.71	90.39	43.024				
15,900.00	8,681.00	19,861.15	12,502.00	129.07	132.87	-171.56	-7,609.52	644.15	3,889.10	3,797.64	91.46	42.521				
16,000.00	8,681.00	19,961.15	12,502.00	130.67	134.43	-171.56	-7,709.52	645.13	3,889.10	3,796.57	92.53	42.029				
16,100.00	8,681.00	20,061.15	12,502.00	132.28	135.99	-171.56	-7,809.51	646.11	3,889.10	3,795.49	93.61	41.547				
16,200.00	8,681.00	20,161.15	12,502.00	133.89	137.55	-171.56	-7,909.51	647.09	3,889.10	3,794.42	94.68	41.075				
16,300.00	8,681.00	20,261.15	12,502.00	135.50	139.12	-171.56	-8,009.50	648.07	3,889.10	3,793.34	95.76	40.613				
16,400.00	8,681.00	20,361.15	12,502.00	137.11	140.68	-171.56	-8,109.50	649.05	3,889.11	3,792.27	96.84	40.161				
16,500.00	8,681.00	20,461.15	12,502.00	138.72	142.25	-171.56	-8,209.49	650.03	3,889.11	3,791.19	97.92	39.718				
16,600.00	8,681.00	20,561.15	12,502.00	140.33	143.82	-171.56	-8,309.49	651.01	3,889.11	3,790.11	99.00	39.284				
16,700.00	8,681.00	20,661.15	12,502.00	141.95	145.40	-171.56	-8,409.48	651.99	3,889.11	3,789.03	100.08	38.859				
16,800.00	8,681.00	20,761.15	12,502.00	143.56	146.97	-171.56	-8,509.48	652.97	3,889.11	3,787.94	101.17	38.442				
16,900.00	8,681.00	20,861.15	12,502.00	145.17	148.54	-171.56	-8,609.47	653.95	3,889.11	3,786.86	102.25	38.034				
17,000.00	8,681.00	20,961.15	12,502.00	146.79	150.12	-171.56	-8,709.47	654.93	3,889.11	3,785.77	103.34	37.634				
17,100.00	8,681.00	21,061.15	12,502.00	148.41	151.70	-171.56	-8,809.46	655.91	3,889.11	3,784.69	104.43	37.242				
17,200.00	8,681.00	21,161.15	12,502.00	150.02	153.28	-171.56	-8,909.46	656.89	3,889.12	3,783.60	105.52	36.857				
17,300.00	8,681.00	21,261.15	12,502.00	151.64	154.86	-171.56	-9,009.45	657.87	3,889.12	3,782.51	106.61	36.480				
17,400.00	8,681.00	21,361.15	12,502.00	153.26	156.45	-171.56	-9,109.45	658.85	3,889.12	3,781.42	107.70	36.111				
17,500.00	8,681.00	21,461.15	12,502.00	154.88	158.03	-171.56	-9,209.44	659.83	3,889.12	3,780.33	108.79	35.749				
17,600.00	8,681.00	21,561.15	12,502.00	156.50	159.62	-171.56	-9,309.44	660.81	3,889.12	3,779.24	109.88	35.393				
17,700.00	8,681.00	21,661.15	12,502.00	158.12	161.20	-171.56	-9,409.43	661.79	3,889.12	3,778.15	110.98	35.045				
17,800.00	8,681.00	21,761.15	12,502.00	159.74	162.79	-171.56	-9,509.43	662.77	3,889.12	3,777.05	112.07	34.703				
17,900.00	8,681.00	21,861.15	12,502.00	161.36	164.38	-171.56	-9,609.42	663.75	3,889.12	3,775.96	113.17	34.367				
18,000.00	8,681.00	21,961.15	12,502.00	162.99	165.97	-171.56	-9,709.42	664.73	3,889.13	3,774.86	114.26	34.037				
18,100.00	8,681.00	22,061.15	12,502.00	164.61	167.57	-171.56	-9,809.42	665.71	3,889.13	3,773.77	115.36	33.713				
18,200.00	8,681.00	22,161.15	12,502.00	166.23	169.16	-171.56	-9,909.41	666.70	3,889.13	3,772.67	116.46	33.395				
18,300.00	8,681.00	22,261.15	12,502.00	167.86	170.75	-171.56	-10,009.41	667.68	3,889.13	3,771.57	117.56	33.083				
18,400.00	8,681.00	22,361.15	12,502.00	169.48	172.35	-171.56	-10,109.40	668.66	3,889.13	3,770.47	118.66	32.777				
18,500.00	8,681.00	22,461.15	12,502.00	171.11	173.95	-171.56	-10,209.40	669.64	3,889.13	3,769.38	119.76	32.476				
18,600.00	8,681.00	22,561.15	12,502.00	172.73	175.54	-171.56	-10,309.39	670.62	3,889.13	3,768.28	120.86	32.180				
18,681.03	8,681.00	22,642.17	12,502.00	174.05	176.77	-171.56	-10,390.41	671.41	3,889.13	3,767.49	121.64	31.973				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Tatanka Fed Com - Tatanka Fed Com 806H - OH - Plan #2													Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	89.42	10.53	1,039.78	1,040.23					
100.00	100.00	71.20	71.20	0.13	0.09	89.42	10.53	1,039.78	1,039.83	1,039.68	0.15	6,751.368		
200.00	200.00	171.20	171.20	0.48	0.38	89.42	10.53	1,039.78	1,039.83	1,039.22	0.62	1,688.778		
300.00	300.00	271.20	271.20	0.84	0.74	89.42	10.53	1,039.78	1,039.83	1,038.71	1.12	927.823		
400.00	400.00	371.20	371.20	1.20	1.10	89.42	10.53	1,039.78	1,039.83	1,038.21	1.63	639.135		
500.00	500.00	471.20	471.20	1.56	1.46	89.42	10.53	1,039.78	1,039.83	1,037.70	2.13	487.383		
600.00	600.00	571.20	571.20	1.92	1.81	89.42	10.53	1,039.78	1,039.83	1,037.19	2.64	393.844		
700.00	700.00	671.20	671.20	2.28	2.17	89.42	10.53	1,039.78	1,039.83	1,036.69	3.15	330.419		
800.00	800.00	771.20	771.20	2.63	2.53	89.42	10.53	1,039.78	1,039.83	1,036.18	3.65	284.586		
900.00	900.00	871.20	871.20	2.99	2.89	89.42	10.53	1,039.78	1,039.83	1,035.67	4.16	249.917		
1,000.00	1,000.00	971.20	971.20	3.35	3.25	89.42	10.53	1,039.78	1,039.83	1,035.17	4.67	222.777		
1,100.00	1,100.00	1,071.20	1,071.20	3.71	3.61	89.42	10.53	1,039.78	1,039.83	1,034.66	5.17	200.953		
1,200.00	1,200.00	1,171.20	1,171.20	4.07	3.97	89.42	10.53	1,039.78	1,039.83	1,034.15	5.68	183.024		
1,300.00	1,300.00	1,271.20	1,271.20	4.43	4.32	89.42	10.53	1,039.78	1,039.83	1,033.65	6.19	168.031		
1,400.00	1,400.00	1,371.20	1,371.20	4.79	4.68	89.42	10.53	1,039.78	1,039.83	1,033.14	6.70	155.309		
1,500.00	1,500.00	1,471.20	1,471.20	5.14	5.04	89.42	10.53	1,039.78	1,039.83	1,032.63	7.20	144.378		
1,600.00	1,600.00	1,571.20	1,571.20	5.50	5.40	89.42	10.53	1,039.78	1,039.83	1,032.12	7.71	134.884		
1,700.00	1,700.00	1,671.20	1,671.20	5.86	5.76	89.42	10.53	1,039.78	1,039.83	1,031.62	8.22	126.561		
1,800.00	1,800.00	1,771.20	1,771.20	6.22	6.12	89.42	10.53	1,039.78	1,039.83	1,031.11	8.72	119.206		
1,900.00	1,900.00	1,871.20	1,871.20	6.58	6.47	89.42	10.53	1,039.78	1,039.83	1,030.60	9.23	112.659		
2,000.00	2,000.00	1,971.20	1,971.20	6.94	6.83	89.42	10.53	1,039.78	1,039.83	1,030.10	9.74	106.794		
2,100.00	2,100.00	2,071.20	2,071.20	7.29	7.19	89.42	10.53	1,039.78	1,039.83	1,029.59	10.24	101.509		
2,200.00	2,200.00	2,171.20	2,171.20	7.65	7.55	89.42	10.53	1,039.78	1,039.83	1,029.08	10.75	96.722		
2,300.00	2,300.00	2,271.20	2,271.20	8.01	7.91	89.42	10.53	1,039.78	1,039.83	1,028.58	11.26	92.367		
2,400.00	2,400.00	2,371.20	2,371.20	8.37	8.27	89.42	10.53	1,039.78	1,039.83	1,028.07	11.76	88.386		
2,500.00	2,500.00	2,471.20	2,471.20	8.73	8.63	89.42	10.53	1,039.78	1,039.83	1,027.56	12.27	84.735		
2,600.00	2,600.00	2,571.20	2,571.20	9.09	8.98	89.42	10.53	1,039.78	1,039.83	1,027.05	12.78	81.374		
2,700.00	2,700.00	2,671.20	2,671.20	9.45	9.34	89.42	10.53	1,039.78	1,039.83	1,026.55	13.29	78.268		
2,800.00	2,800.00	2,771.20	2,771.20	9.80	9.70	89.42	10.53	1,039.78	1,039.83	1,026.04	13.79	75.392		
2,900.00	2,900.00	2,871.20	2,871.20	10.16	10.06	89.42	10.53	1,039.78	1,039.83	1,025.53	14.30	72.719		
3,000.00	3,000.00	2,971.20	2,971.20	10.52	10.42	89.42	10.53	1,039.78	1,039.83	1,025.03	14.81	70.229	CC	
3,100.00	3,099.99	3,071.19	3,071.19	10.86	10.78	-90.29	10.53	1,039.78	1,039.84	1,024.54	15.30	67.964		
3,200.00	3,199.91	3,171.11	3,171.11	11.18	11.13	-90.51	10.53	1,039.78	1,039.87	1,024.09	15.78	65.893	ES	
3,300.00	3,299.69	3,255.75	3,255.75	11.51	11.43	-90.80	10.51	1,040.19	1,040.46	1,024.24	16.22	64.147		
3,400.00	3,399.27	3,334.04	3,334.01	11.84	11.70	-91.15	10.40	1,042.13	1,043.10	1,026.47	16.64	62.703		
3,500.00	3,498.57	3,412.02	3,411.91	12.17	11.97	-91.56	10.20	1,045.65	1,047.93	1,030.88	17.04	61.482		
3,533.06	3,531.33	3,437.72	3,437.57	12.28	12.06	-91.71	10.11	1,047.16	1,050.01	1,032.83	17.18	61.122		
3,600.00	3,597.62	3,500.00	3,499.69	12.50	12.27	-92.16	9.86	1,051.54	1,055.02	1,037.53	17.48	60.339		
3,700.00	3,696.65	3,567.07	3,566.51	12.85	12.50	-92.63	9.53	1,057.38	1,064.14	1,046.29	17.85	59.606		
3,800.00	3,795.68	3,644.21	3,643.21	13.19	12.77	-93.15	9.06	1,065.54	1,075.46	1,057.21	18.25	58.922		
3,900.00	3,894.70	3,740.69	3,739.02	13.54	13.11	-93.79	8.41	1,076.88	1,088.08	1,069.35	18.73	58.095		
4,000.00	3,993.73	3,839.13	3,836.77	13.90	13.46	-94.42	7.75	1,088.47	1,100.85	1,081.63	19.22	57.280		
4,100.00	4,092.76	3,937.57	3,934.53	14.26	13.81	-95.04	7.09	1,100.05	1,113.74	1,094.03	19.71	56.503		
4,149.39	4,141.67	3,986.19	3,982.81	14.44	13.99	-95.34	6.77	1,105.77	1,120.16	1,100.20	19.96	56.132		
4,200.00	4,191.83	4,036.05	4,032.32	14.62	14.17	-95.73	6.43	1,111.64	1,126.73	1,106.53	20.21	55.760		
4,300.00	4,291.19	4,134.80	4,130.38	14.98	14.52	-96.39	5.77	1,123.26	1,139.59	1,118.89	20.70	55.045		
4,400.00	4,390.81	4,233.79	4,228.68	15.34	14.88	-96.90	5.11	1,134.91	1,152.21	1,131.01	21.20	54.355		
4,500.00	4,490.62	4,332.95	4,327.15	15.69	15.25	-97.27	4.44	1,146.58	1,164.55	1,142.86	21.69	53.689		
4,600.00	4,590.56	4,432.22	4,425.73	16.04	15.61	-97.51	3.77	1,158.26	1,176.56	1,154.38	22.18	53.044		
4,682.45	4,673.00	4,514.09	4,507.03	16.32	15.92	82.04	3.23	1,167.89	1,186.21	1,163.62	22.59	52.521		
4,700.00	4,690.55	4,531.52	4,524.34	16.38	15.98	82.06	3.11	1,169.94	1,188.24	1,165.57	22.67	52.411		
4,800.00	4,790.55	4,630.83	4,622.95	16.73	16.35	82.17	2.44	1,181.63	1,199.81	1,176.64	23.16	51.794		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 806H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD															Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
4,900.00	4,890.55	4,730.13	4,721.56	17.08	16.72	82.27	1.78	1,193.31	1,211.38	1,187.72	23.66	51.202				
5,000.00	4,990.55	4,829.43	4,820.17	17.43	17.09	82.38	1.11	1,205.00	1,222.95	1,198.80	24.15	50.633				
5,100.00	5,090.55	4,928.73	4,918.78	17.78	17.46	82.48	0.44	1,216.68	1,234.53	1,209.88	24.65	50.085				
5,200.00	5,190.55	5,028.04	5,017.39	18.13	17.84	82.58	-0.22	1,228.37	1,246.11	1,220.97	25.14	49.558				
5,300.00	5,290.55	5,127.34	5,116.00	18.48	18.21	82.68	-0.89	1,240.05	1,257.70	1,232.06	25.64	49.050				
5,400.00	5,390.55	5,226.64	5,214.61	18.83	18.59	82.78	-1.56	1,251.74	1,269.29	1,243.15	26.14	48.560				
5,500.00	5,490.55	5,325.95	5,313.22	19.19	18.97	82.88	-2.22	1,263.42	1,280.88	1,254.25	26.64	48.088				
5,600.00	5,590.55	5,425.25	5,411.84	19.54	19.35	82.97	-2.89	1,275.11	1,292.48	1,265.35	27.13	47.633				
5,700.00	5,690.55	5,524.55	5,510.45	19.89	19.73	83.06	-3.55	1,286.79	1,304.08	1,276.45	27.63	47.193				
5,800.00	5,790.55	5,623.86	5,609.06	20.24	20.11	83.15	-4.22	1,298.48	1,315.69	1,287.55	28.13	46.768				
5,900.00	5,890.55	5,723.16	5,707.67	20.59	20.49	83.24	-4.89	1,310.16	1,327.29	1,298.66	28.63	46.357				
6,000.00	5,990.55	5,822.46	5,806.28	20.95	20.87	83.33	-5.55	1,321.85	1,338.90	1,309.77	29.13	45.960				
6,100.00	6,090.55	5,921.76	5,904.89	21.30	21.25	83.42	-6.22	1,333.53	1,350.52	1,320.88	29.63	45.576				
6,200.00	6,190.55	6,021.07	6,003.50	21.65	21.64	83.50	-6.89	1,345.22	1,362.13	1,332.00	30.13	45.204				
6,300.00	6,290.55	6,120.37	6,102.11	22.00	22.02	83.58	-7.55	1,356.90	1,373.75	1,343.12	30.63	44.844				
6,400.00	6,390.55	6,219.67	6,200.72	22.36	22.41	83.67	-8.22	1,368.59	1,385.37	1,354.24	31.14	44.495				
6,500.00	6,490.55	6,318.98	6,299.33	22.71	22.79	83.75	-8.88	1,380.27	1,397.00	1,365.36	31.64	44.156				
6,600.00	6,590.55	6,418.28	6,397.94	23.06	23.18	83.83	-9.55	1,391.96	1,408.63	1,376.49	32.14	43.828				
6,700.00	6,690.55	6,517.58	6,496.56	23.42	23.56	83.90	-10.22	1,403.64	1,420.26	1,387.62	32.64	43.510				
6,800.00	6,790.55	6,616.89	6,595.17	23.77	23.95	83.98	-10.88	1,415.33	1,431.89	1,398.75	33.14	43.201				
6,900.00	6,890.55	6,716.19	6,693.78	24.13	24.34	84.06	-11.55	1,427.01	1,443.52	1,409.88	33.65	42.901				
7,000.00	6,990.55	6,815.49	6,792.39	24.48	24.73	84.13	-12.22	1,438.70	1,455.16	1,421.01	34.15	42.610				
7,100.00	7,090.55	6,914.79	6,891.00	24.83	25.12	84.20	-12.88	1,450.38	1,466.80	1,432.15	34.65	42.327				
7,200.00	7,190.55	7,014.10	6,989.61	25.19	25.50	84.28	-13.55	1,462.07	1,478.44	1,443.29	35.16	42.051				
7,300.00	7,290.55	7,137.66	7,112.37	25.54	25.99	84.36	-14.35	1,476.09	1,489.77	1,454.01	35.76	41.660				
7,400.00	7,390.55	7,300.12	7,274.30	25.90	26.60	84.44	-15.09	1,489.12	1,497.71	1,461.23	36.48	41.051				
7,500.00	7,490.55	7,463.41	7,437.45	26.25	27.18	84.47	-15.44	1,495.27	1,501.44	1,464.29	37.15	40.411				
7,600.00	7,590.55	7,587.71	7,561.75	26.61	27.61	84.48	-15.47	1,495.78	1,501.75	1,464.05	37.70	39.831				
7,700.00	7,690.55	7,687.71	7,661.75	26.96	27.95	84.48	-15.47	1,495.78	1,501.75	1,463.55	38.20	39.312				
7,800.00	7,790.55	7,787.71	7,761.75	27.32	28.29	84.48	-15.47	1,495.78	1,501.75	1,463.05	38.70	38.807				
7,900.00	7,890.55	7,887.71	7,861.75	27.67	28.63	84.48	-15.47	1,495.78	1,501.75	1,462.55	39.20	38.314				
8,000.00	7,990.55	7,987.71	7,961.75	28.03	28.97	84.48	-15.47	1,495.78	1,501.75	1,462.06	39.69	37.833				
8,100.00	8,090.55	8,087.71	8,061.75	28.38	29.31	84.48	-15.47	1,495.78	1,501.75	1,461.56	40.19	37.364				
8,117.49	8,108.04	8,105.20	8,079.24	28.44	29.37	84.48	-15.47	1,495.78	1,501.75	1,461.47	40.28	37.283				
8,150.00	8,140.53	8,137.69	8,111.73	28.56	29.48	-94.99	-15.47	1,495.78	1,501.83	1,461.39	40.44	37.137				
8,200.00	8,190.27	8,187.43	8,161.47	28.73	29.65	-95.14	-15.47	1,495.78	1,502.28	1,461.59	40.69	36.924				
8,250.00	8,239.37	8,236.53	8,210.57	28.91	29.82	-95.40	-15.47	1,495.78	1,503.15	1,462.21	40.93	36.721				
8,300.00	8,287.48	8,284.64	8,258.68	29.09	29.99	-95.76	-15.47	1,495.78	1,504.52	1,463.34	41.18	36.533				
8,350.00	8,334.22	8,331.38	8,305.42	29.27	30.15	-96.19	-15.47	1,495.78	1,506.49	1,465.06	41.43	36.361				
8,400.00	8,379.24	8,376.40	8,350.44	29.46	30.30	-96.66	-15.47	1,495.78	1,509.19	1,467.51	41.68	36.208				
8,450.00	8,422.20	8,419.36	8,393.40	29.66	30.45	-97.13	-15.47	1,495.78	1,512.76	1,470.83	41.93	36.080				
8,500.00	8,462.76	8,459.92	8,433.96	29.86	30.59	-97.56	-15.47	1,495.78	1,517.36	1,475.18	42.17	35.978				
8,550.00	8,500.63	8,497.79	8,471.83	30.07	30.72	-97.92	-15.47	1,495.78	1,523.14	1,480.72	42.42	35.907				
8,600.00	8,535.51	8,532.67	8,506.71	30.28	30.84	-98.14	-15.47	1,495.78	1,530.25	1,487.59	42.66	35.870				
8,650.00	8,567.13	8,564.29	8,538.33	30.51	30.95	-98.20	-15.47	1,495.78	1,538.85	1,495.95	42.90	35.870				
8,700.00	8,595.26	8,592.42	8,566.46	30.75	31.04	-98.04	-15.47	1,495.78	1,549.04	1,505.91	43.14	35.911				
8,750.00	8,619.68	8,616.84	8,590.88	30.99	31.13	-97.63	-15.47	1,495.78	1,560.91	1,517.55	43.36	35.995				
8,800.00	8,640.21	8,637.37	8,611.41	31.25	31.20	-96.93	-15.47	1,495.78	1,574.51	1,530.93	43.59	36.123				
8,850.00	8,656.69	8,653.85	8,627.89	31.52	31.25	-95.91	-15.47	1,495.78	1,589.85	1,546.05	43.80	36.298				
8,900.00	8,668.99	8,666.15	8,640.19	31.80	31.30	-94.56	-15.47	1,495.78	1,606.89	1,562.88	44.00	36.518				
8,950.00	8,677.03	8,674.19	8,648.23	32.09	31.32	-92.86	-15.47	1,495.78	1,625.54	1,581.34	44.19	36.784				
9,000.00	8,680.73	8,677.89	8,651.93	32.38	31.34	-90.80	-15.47	1,495.78	1,645.67	1,601.30	44.37	37.094				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 806H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
							+N/-S (usft)	+E/-W (usft)								
9,017.49	8,681.00	8,678.16	8,652.20	32.49	31.34	-90.00	-15.47	1,495.78	1,653.03	1,608.60	44.42	37.212				
9,100.00	8,681.00	8,678.16	8,652.20	33.00	31.34	-90.00	-15.47	1,495.78	1,689.76	1,645.08	44.69	37.812				
9,200.00	8,681.00	8,678.16	8,652.20	33.70	31.34	-90.00	-15.47	1,495.78	1,738.50	1,693.49	45.01	38.622				
9,300.00	8,681.00	8,678.16	8,652.20	34.46	31.34	-90.00	-15.47	1,495.78	1,791.50	1,746.17	45.33	39.517				
9,400.00	8,681.00	8,678.16	8,652.20	35.28	31.34	-90.00	-15.47	1,495.78	1,848.40	1,802.75	45.65	40.493				
9,500.00	8,681.00	8,678.16	8,652.20	36.15	31.34	-90.00	-15.47	1,495.78	1,908.84	1,862.89	45.95	41.545				
9,600.00	8,681.00	8,678.16	8,652.20	37.08	31.34	-90.00	-15.47	1,495.78	1,972.50	1,926.27	46.23	42.668				
9,700.00	8,681.00	8,678.16	8,652.20	38.06	31.34	-90.00	-15.47	1,495.78	2,039.08	1,992.59	46.49	43.856				
9,800.00	8,681.00	8,678.16	8,652.20	39.08	31.34	-90.00	-15.47	1,495.78	2,108.30	2,061.56	46.75	45.102				
9,900.00	8,681.00	8,678.16	8,652.20	40.15	31.34	-90.00	-15.47	1,495.78	2,179.92	2,132.94	46.98	46.402				
10,000.00	8,681.00	8,678.16	8,652.20	41.25	31.34	-90.00	-15.47	1,495.78	2,253.69	2,206.50	47.20	47.751				
10,100.00	8,681.00	8,678.16	8,652.20	42.39	31.34	-90.00	-15.47	1,495.78	2,329.43	2,282.03	47.40	49.145				
10,200.00	8,681.00	8,678.16	8,652.20	43.56	31.34	-90.00	-15.47	1,495.78	2,406.93	2,359.34	47.59	50.580				
10,300.00	8,681.00	8,678.16	8,652.20	44.77	31.34	-90.00	-15.47	1,495.78	2,486.04	2,438.28	47.76	52.054				
10,400.00	8,681.00	8,678.16	8,652.20	46.00	31.34	-90.00	-15.47	1,495.78	2,566.61	2,518.69	47.92	53.562				
10,500.00	8,681.00	8,678.16	8,652.20	47.25	31.34	-90.00	-15.47	1,495.78	2,648.51	2,600.44	48.07	55.100				
10,600.00	8,681.00	8,678.16	8,652.20	48.53	31.34	-90.00	-15.47	1,495.78	2,731.61	2,683.40	48.21	56.666				
10,700.00	8,681.00	8,678.16	8,652.20	49.83	31.34	-90.00	-15.47	1,495.78	2,815.81	2,767.47	48.33	58.258				
10,800.00	8,681.00	8,678.16	8,652.20	51.16	31.34	-90.00	-15.47	1,495.78	2,901.01	2,852.56	48.45	59.872				
10,900.00	8,681.00	8,678.16	8,652.20	52.50	31.34	-90.00	-15.47	1,495.78	2,987.13	2,938.57	48.57	61.506				
11,000.00	8,681.00	8,678.16	8,652.20	53.86	31.34	-90.00	-15.47	1,495.78	3,074.09	3,025.42	48.67	63.159				
11,100.00	8,681.00	8,678.16	8,652.20	55.23	31.34	-90.00	-15.47	1,495.78	3,161.83	3,113.05	48.77	64.829				
11,200.00	8,681.00	8,678.16	8,652.20	56.62	31.34	-90.00	-15.47	1,495.78	3,250.27	3,201.40	48.87	66.515				
11,300.00	8,681.00	8,678.16	8,652.20	58.02	31.34	-90.00	-15.47	1,495.78	3,339.36	3,290.41	48.95	68.216				
11,400.00	8,681.00	8,678.16	8,652.20	59.44	31.34	-90.00	-15.47	1,495.78	3,429.06	3,380.02	49.03	69.931				
11,500.00	8,681.00	8,678.16	8,652.20	60.86	31.34	-90.00	-15.47	1,495.78	3,519.31	3,470.19	49.11	71.658				
11,600.00	8,681.00	8,678.16	8,652.20	62.30	31.34	-90.00	-15.47	1,495.78	3,610.07	3,560.88	49.19	73.395				
11,700.00	8,681.00	8,678.16	8,652.20	63.75	31.34	-90.00	-15.47	1,495.78	3,701.31	3,652.05	49.26	75.142				
11,800.00	8,681.00	8,678.16	8,652.20	65.21	31.34	-90.00	-15.47	1,495.78	3,792.99	3,743.67	49.33	76.897				
11,900.00	8,681.00	8,678.16	8,652.20	66.68	31.34	-90.00	-15.47	1,495.78	3,885.08	3,835.69	49.39	78.661				
12,000.00	8,681.00	8,678.16	8,652.20	68.15	31.34	-90.00	-15.47	1,495.78	3,977.56	3,928.11	49.45	80.432				
12,100.00	8,681.00	15,940.40	12,375.00	69.63	76.46	-158.10	-3,800.65	1,532.83	4,012.27	3,952.51	59.76	67.137				
12,200.00	8,681.00	16,040.40	12,375.00	71.13	77.81	-158.10	-3,900.65	1,533.81	4,012.28	3,951.41	60.86	65.925				
12,300.00	8,681.00	16,140.40	12,375.00	72.62	79.18	-158.10	-4,000.64	1,534.78	4,012.28	3,950.31	61.97	64.746				
12,400.00	8,681.00	16,240.40	12,375.00	74.13	80.56	-158.10	-4,100.64	1,535.76	4,012.28	3,949.20	63.08	63.602				
12,500.00	8,681.00	16,340.40	12,375.00	75.64	81.95	-158.10	-4,200.63	1,536.74	4,012.28	3,948.08	64.21	62.490				
12,600.00	8,681.00	16,440.40	12,375.00	77.15	83.35	-158.10	-4,300.63	1,537.72	4,012.29	3,946.95	65.34	61.409				
12,700.00	8,681.00	16,540.40	12,375.00	78.68	84.75	-158.10	-4,400.62	1,538.70	4,012.29	3,945.81	66.48	60.358				
12,800.00	8,681.00	16,640.40	12,375.00	80.20	86.17	-158.10	-4,500.62	1,539.68	4,012.29	3,944.67	67.62	59.335				
12,900.00	8,681.00	16,740.40	12,375.00	81.74	87.59	-158.10	-4,600.61	1,540.66	4,012.29	3,943.52	68.77	58.341				
13,000.00	8,681.00	16,840.40	12,375.00	83.27	89.03	-158.10	-4,700.61	1,541.64	4,012.29	3,942.36	69.93	57.375				
13,100.00	8,681.00	16,940.40	12,375.00	84.81	90.47	-158.10	-4,800.60	1,542.61	4,012.30	3,941.20	71.10	56.435				
13,200.00	8,681.00	17,040.40	12,375.00	86.36	91.91	-158.10	-4,900.60	1,543.59	4,012.30	3,940.03	72.27	55.521				
13,300.00	8,681.00	17,140.40	12,375.00	87.91	93.37	-158.10	-5,000.59	1,544.57	4,012.30	3,938.86	73.44	54.631				
13,400.00	8,681.00	17,240.40	12,375.00	89.46	94.83	-158.10	-5,100.59	1,545.55	4,012.30	3,937.68	74.62	53.766				
13,500.00	8,681.00	17,340.40	12,375.00	91.01	96.29	-158.10	-5,200.58	1,546.53	4,012.31	3,936.50	75.81	52.925				
13,600.00	8,681.00	17,440.40	12,375.00	92.57	97.76	-158.10	-5,300.58	1,547.51	4,012.31	3,935.31	77.00	52.106				
13,700.00	8,681.00	17,540.40	12,375.00	94.13	99.24	-158.10	-5,400.57	1,548.49	4,012.31	3,934.11	78.20	51.309				
13,800.00	8,681.00	17,640.40	12,375.00	95.70	100.72	-158.10	-5,500.57	1,549.47	4,012.31	3,932.91	79.40	50.533				
13,900.00	8,681.00	17,740.40	12,375.00	97.27	102.21	-158.10	-5,600.56	1,550.44	4,012.32	3,931.71	80.60	49.778				
14,000.00	8,681.00	17,840.40	12,375.00	98.84	103.71	-158.10	-5,700.56	1,551.42	4,012.32	3,930.51	81.81	49.044				
14,100.00	8,681.00	17,940.40	12,375.00	100.41	105.20	-158.10	-5,800.55	1,552.40	4,012.32	3,929.30	83.02	48.329				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Tatanka Fed Com - Tatanka Fed Com 806H - OH - Plan #2		Offset Site Error:	0.00 usft
Survey Program: 0-OWSG (Rev2) MWD													Offset Well Error:	0.00 usft		
Reference		Offset		Semi Major Axis			Distance									
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning			
14,200.00	8,681.00	18,040.40	12,375.00	101.99	106.71	-158.10	-5,900.55	1,553.38	4,012.32	3,928.09	84.23	47.634				
14,300.00	8,681.00	18,140.40	12,375.00	103.57	108.21	-158.10	-6,000.54	1,554.36	4,012.33	3,926.88	85.45	46.957				
14,400.00	8,681.00	18,240.40	12,375.00	105.15	109.72	-158.10	-6,100.54	1,555.34	4,012.33	3,925.66	86.67	46.296				
14,500.00	8,681.00	18,340.40	12,375.00	106.73	111.24	-158.10	-6,200.54	1,556.32	4,012.33	3,924.44	87.89	45.653				
14,600.00	8,681.00	18,440.40	12,375.00	108.31	112.76	-158.10	-6,300.53	1,557.29	4,012.33	3,923.22	89.11	45.025				
14,700.00	8,681.00	18,540.40	12,375.00	109.90	114.28	-158.10	-6,400.53	1,558.27	4,012.34	3,921.99	90.34	44.413				
14,800.00	8,681.00	18,640.40	12,375.00	111.49	115.81	-158.10	-6,500.52	1,559.25	4,012.34	3,920.77	91.57	43.816				
14,900.00	8,681.00	18,740.40	12,375.00	113.08	117.34	-158.10	-6,600.52	1,560.23	4,012.34	3,919.54	92.81	43.234				
15,000.00	8,681.00	18,840.40	12,375.00	114.67	118.87	-158.10	-6,700.51	1,561.21	4,012.34	3,918.30	94.04	42.666				
15,100.00	8,681.00	18,940.40	12,375.00	116.27	120.40	-158.10	-6,800.51	1,562.19	4,012.35	3,917.07	95.28	42.111				
15,200.00	8,681.00	19,040.40	12,375.00	117.86	121.94	-158.10	-6,900.50	1,563.17	4,012.35	3,915.83	96.52	41.569				
15,300.00	8,681.00	19,140.40	12,375.00	119.46	123.48	-158.10	-7,000.50	1,564.15	4,012.35	3,914.59	97.77	41.041				
15,400.00	8,681.00	19,240.40	12,375.00	121.06	125.03	-158.10	-7,100.49	1,565.12	4,012.35	3,913.34	99.01	40.524				
15,500.00	8,681.00	19,340.40	12,375.00	122.66	126.58	-158.10	-7,200.49	1,566.10	4,012.36	3,912.10	100.26	40.020				
15,600.00	8,681.00	19,440.40	12,375.00	124.26	128.13	-158.10	-7,300.48	1,567.08	4,012.36	3,910.85	101.51	39.527				
15,700.00	8,681.00	19,540.40	12,375.00	125.86	129.68	-158.10	-7,400.48	1,568.06	4,012.36	3,909.60	102.76	39.046				
15,800.00	8,681.00	19,640.40	12,375.00	127.46	131.23	-158.10	-7,500.47	1,569.04	4,012.36	3,908.35	104.01	38.576				
15,900.00	8,681.00	19,740.40	12,375.00	129.07	132.79	-158.10	-7,600.47	1,570.02	4,012.37	3,907.10	105.26	38.118				
16,000.00	8,681.00	19,840.40	12,375.00	130.67	134.35	-158.10	-7,700.46	1,571.00	4,012.37	3,905.85	106.52	37.669				
16,100.00	8,681.00	19,940.40	12,375.00	132.28	135.91	-158.10	-7,800.46	1,571.98	4,012.37	3,904.60	107.77	37.231				
16,200.00	8,681.00	20,040.40	12,375.00	133.89	137.48	-158.10	-7,900.45	1,572.95	4,012.37	3,903.35	109.03	36.802				
16,300.00	8,681.00	20,140.40	12,375.00	135.50	139.04	-158.10	-8,000.45	1,573.93	4,012.37	3,902.09	110.28	36.382				
16,400.00	8,681.00	20,240.40	12,375.00	137.11	140.61	-158.10	-8,100.44	1,574.91	4,012.38	3,900.83	111.54	35.971				
16,500.00	8,681.00	20,340.40	12,375.00	138.72	142.18	-158.10	-8,200.44	1,575.89	4,012.38	3,899.57	112.81	35.569				
16,600.00	8,681.00	20,440.40	12,375.00	140.33	143.75	-158.10	-8,300.43	1,576.87	4,012.38	3,898.31	114.07	35.175				
16,700.00	8,681.00	20,540.40	12,375.00	141.95	145.32	-158.10	-8,400.43	1,577.85	4,012.38	3,897.05	115.33	34.790				
16,800.00	8,681.00	20,640.40	12,375.00	143.56	146.90	-158.10	-8,500.43	1,578.83	4,012.39	3,895.79	116.60	34.412				
16,900.00	8,681.00	20,740.40	12,375.00	145.17	148.47	-158.10	-8,600.42	1,579.81	4,012.39	3,894.53	117.86	34.043				
17,000.00	8,681.00	20,840.40	12,375.00	146.79	150.05	-158.10	-8,700.42	1,580.78	4,012.39	3,893.26	119.13	33.680				
17,100.00	8,681.00	20,940.40	12,375.00	148.41	151.63	-158.10	-8,800.41	1,581.76	4,012.39	3,891.99	120.40	33.325				
17,200.00	8,681.00	21,040.40	12,375.00	150.02	153.21	-158.10	-8,900.41	1,582.74	4,012.40	3,890.73	121.67	32.977				
17,300.00	8,681.00	21,140.40	12,375.00	151.64	154.80	-158.10	-9,000.40	1,583.72	4,012.40	3,889.46	122.94	32.636				
17,400.00	8,681.00	21,240.40	12,375.00	153.26	156.38	-158.10	-9,100.40	1,584.70	4,012.40	3,888.19	124.21	32.302				
17,500.00	8,681.00	21,340.40	12,375.00	154.88	157.97	-158.10	-9,200.39	1,585.68	4,012.40	3,886.92	125.49	31.975				
17,600.00	8,681.00	21,440.40	12,375.00	156.50	159.55	-158.10	-9,300.39	1,586.66	4,012.41	3,885.65	126.76	31.654				
17,700.00	8,681.00	21,540.40	12,375.00	158.12	161.14	-158.10	-9,400.38	1,587.63	4,012.41	3,884.38	128.03	31.340				
17,800.00	8,681.00	21,640.40	12,375.00	159.74	162.73	-158.10	-9,500.38	1,588.61	4,012.41	3,883.11	129.30	31.031				
17,900.00	8,681.00	21,740.40	12,375.00	161.36	164.32	-158.10	-9,600.37	1,589.59	4,012.41	3,881.84	130.58	30.728				
18,000.00	8,681.00	21,840.40	12,375.00	162.99	165.91	-158.10	-9,700.37	1,590.57	4,012.42	3,880.56	131.85	30.431				
18,100.00	8,681.00	21,940.40	12,375.00	164.61	167.51	-158.10	-9,800.36	1,591.55	4,012.42	3,879.29	133.13	30.139				
18,200.00	8,681.00	22,040.40	12,375.00	166.23	169.10	-158.10	-9,900.36	1,592.53	4,012.42	3,878.01	134.41	29.853				
18,300.00	8,681.00	22,140.40	12,375.00	167.86	170.69	-158.10	-10,000.35	1,593.51	4,012.42	3,876.74	135.68	29.572				
18,400.00	8,681.00	22,240.40	12,375.00	169.48	172.29	-158.10	-10,100.35	1,594.49	4,012.43	3,875.46	136.96	29.296				
18,500.00	8,681.00	22,340.40	12,375.00	171.11	173.89	-158.10	-10,200.34	1,595.46	4,012.43	3,874.19	138.24	29.025				
18,600.00	8,681.00	22,440.40	12,375.00	172.73	175.49	-158.10	-10,300.34	1,596.44	4,012.43	3,872.91	139.52	28.759				
18,681.03	8,681.00	22,521.43	12,375.00	174.05	176.75	-158.10	-10,381.36	1,597.24	4,012.43	3,871.93	140.50	28.557 SF				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

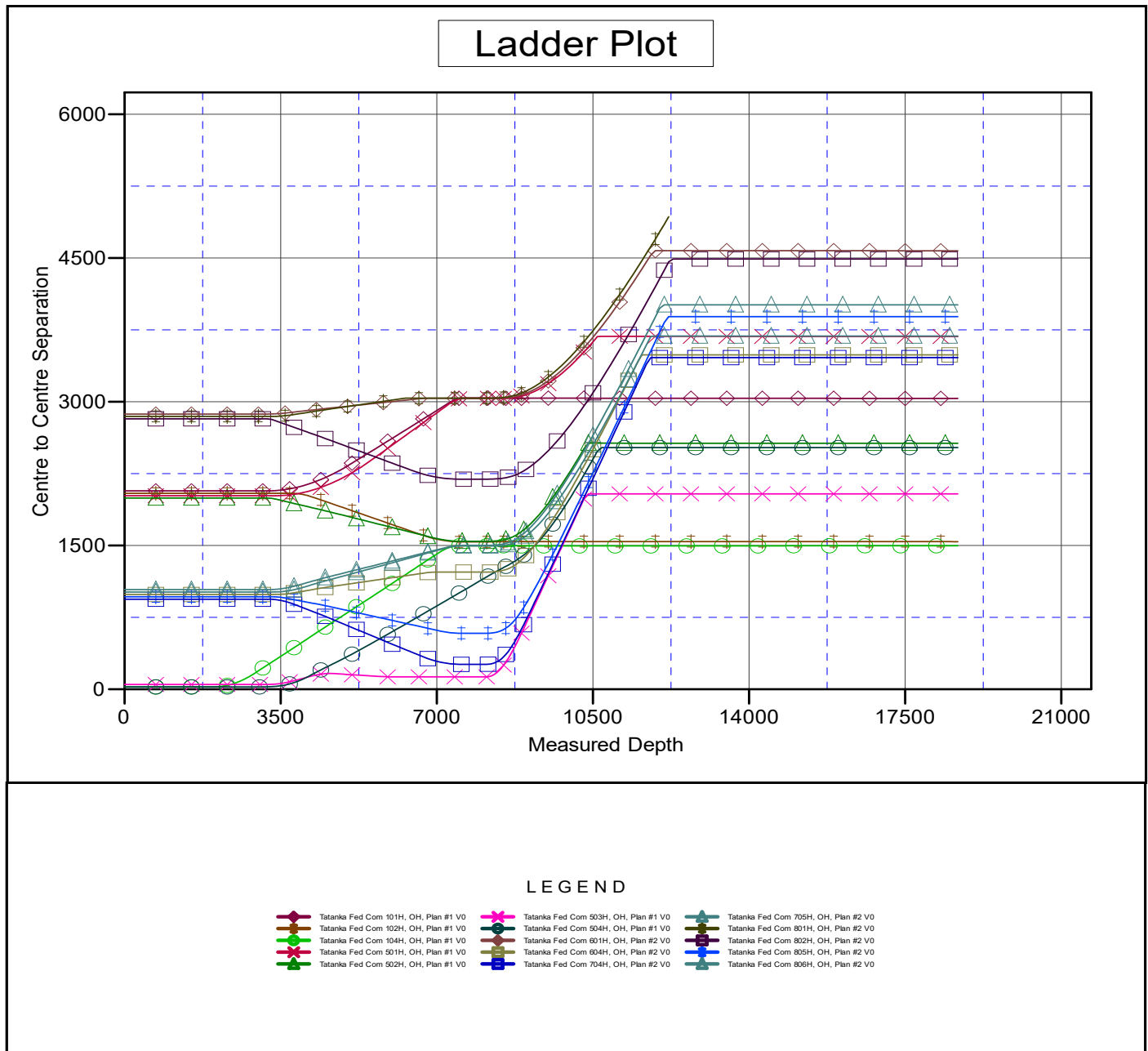
Anticollision Report



Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3119' GE + 30' KB @ 3149.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Tatanka Fed Com 103H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.53°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Total Directional Services

Anticollision Report

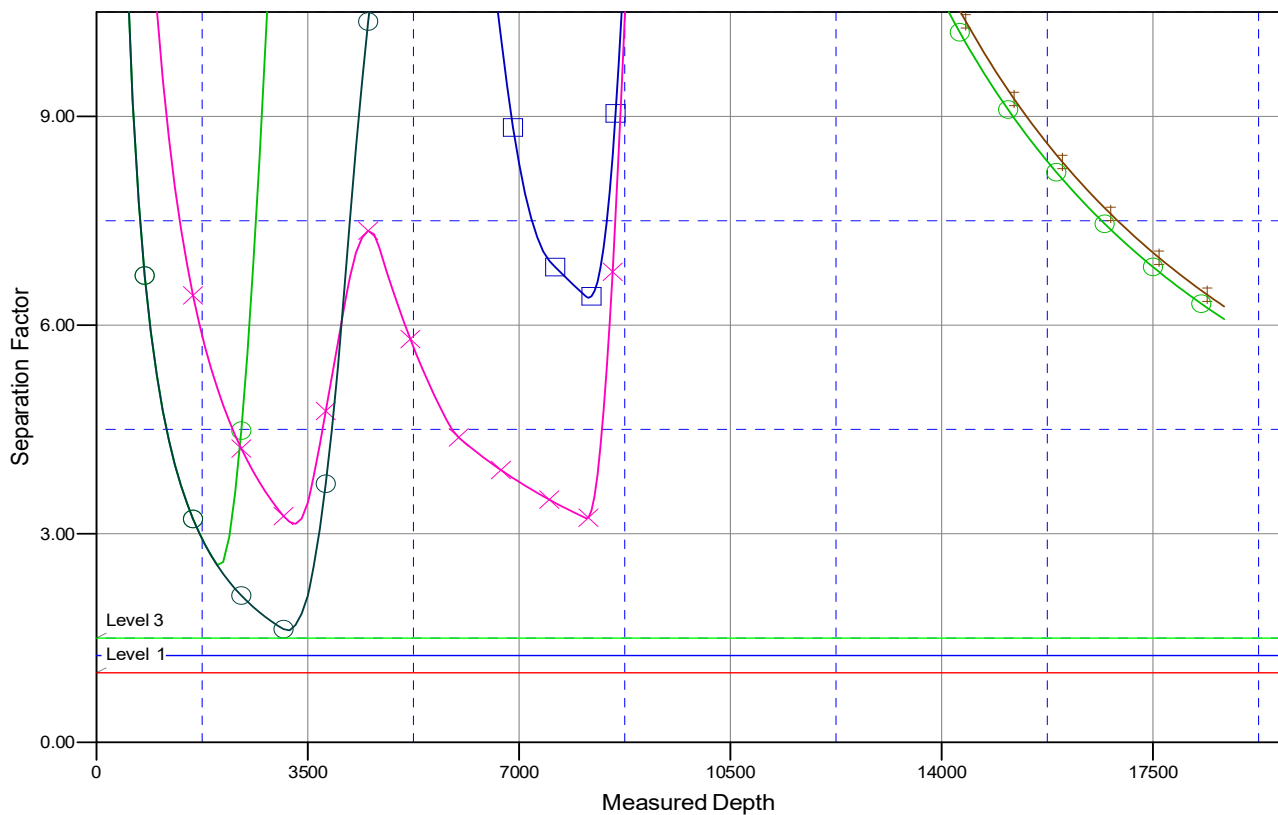


Company:	Franklin Mountain Energy	Local Co-ordinate Reference:	Well Tatanka Fed Com 103H
Project:	Lea County, NM (NAD83)	TVD Reference:	3119' GE + 30' KB @ 3149.00usft
Reference Site:	Tatanka Fed Com	MD Reference:	3119' GE + 30' KB @ 3149.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Tatanka Fed Com 103H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000.15 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 3119' GE + 30' KB @ 3149.00usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.333334

Coordinates are relative to: Tatanka Fed Com 103H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.53°

Separation Factor Plot



LEGEND

Tatanka Fed Com 101H, OH, Plan #1 V0	Tatanka Fed Com 503H, OH, Plan #1 V0	Tatanka Fed Com 705H, OH, Plan #2 V0
Tatanka Fed Com 102H, OH, Plan #1 V0	Tatanka Fed Com 504H, OH, Plan #1 V0	Tatanka Fed Com 801H, OH, Plan #2 V0
Tatanka Fed Com 104H, OH, Plan #1 V0	Tatanka Fed Com 601H, OH, Plan #2 V0	Tatanka Fed Com 802H, OH, Plan #2 V0
Tatanka Fed Com 501H, OH, Plan #1 V0	Tatanka Fed Com 604H, OH, Plan #2 V0	Tatanka Fed Com 805H, OH, Plan #2 V0
Tatanka Fed Com 502H, OH, Plan #1 V0	Tatanka Fed Com 704H, OH, Plan #2 V0	Tatanka Fed Com 806H, OH, Plan #2 V0

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Franklin Mountain Energy LLC
LEASE NO.:	NMNM12280
COUNTY:	Lea County

Wells:

Tatanka Fed Com 601H	Tatanka Fed Com 804H	Tatanka Fed Com 503H
Tatanka Fed Com 801H	Tatanka Fed Com 703H	Tatanka Fed Com 806H
Tatanka Fed Com 802H	Tatanka Fed Com 803H	Tatanka Fed Com 705H
Tatanka Fed Com 502H	Tatanka Fed Com 602H	Tatanka Fed Com 604H
Tatanka Fed Com 501H	Tatanka Fed Com 702H	Tatanka Fed Com 805H
Tatanka Fed Com 102H	Tatanka Fed Com 104H	Tatanka Fed Com 704H
Tatanka Fed Com 101H	Tatanka Fed Com 103H	
Tatanka Fed Com 603H	Tatanka Fed Com 504H	

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Watershed
 - Range
 - Lesser Prairie Chicken
 - VRM IV
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be

responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Watershed:

The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

TANK BATTERY:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

BURIED/SURFACE LINE(S):

When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

ELECTRIC LINE(S):

Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or

floodplains and must span across the features at a distance away that would not promote further erosion.

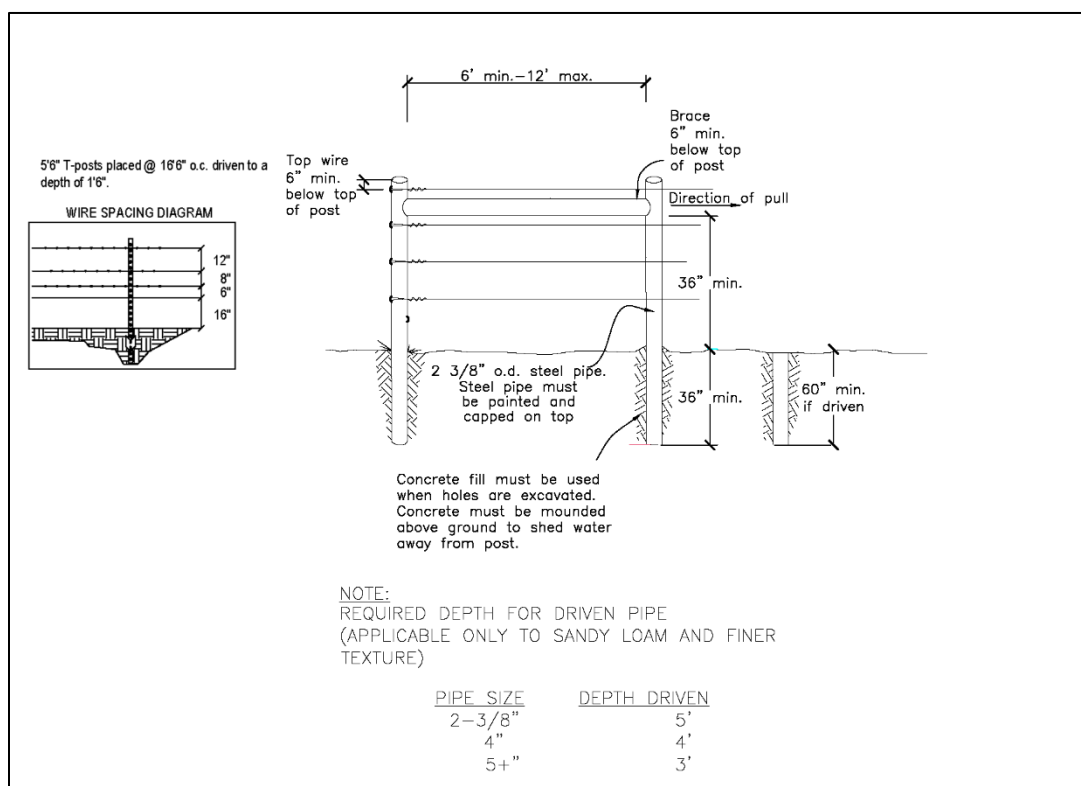
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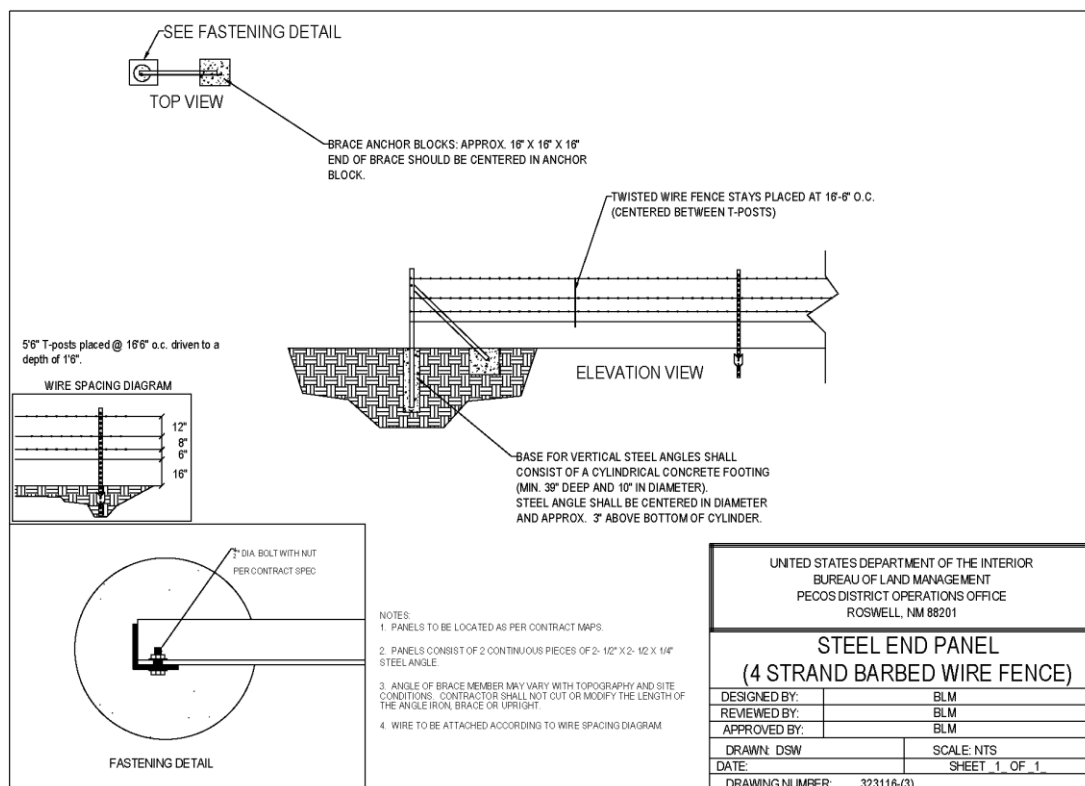
Cattleguards

Where a permanent cattleguard is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be H-braced or angle iron braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall consult the private surface landowner or the grazing allotment holder prior to cutting any fence(s).





Livestock Watering Requirement

Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action.

Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary

Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching:

Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VRM IV:

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Carlsbad Canyon from the BLM Standard Environmental Color Chart (CC-001: June 2008).

Short-term mitigation measures include painting all above-ground structures that are not subject to safety requirements (including meter housing) Carlsbad Canyon, which is a flat non-reflective paint color listed in the BLM Standard Environmental Color Chart (CC-001: June 2013). Long-term mitigation measures include the removal of wells and associated infrastructure following abandonment (end of cost-effective production). Previously impacted areas will be reclaimed by removing structures and caliche pads, returning disturbed areas to natural grade, and revegetating with an approved BLM seed mixture; thereby eliminating visual impacts.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

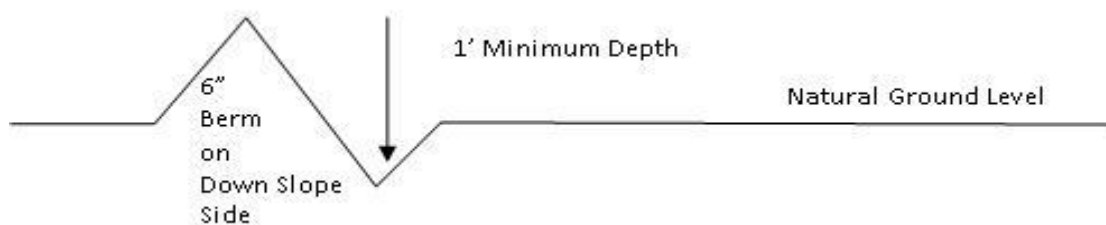
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

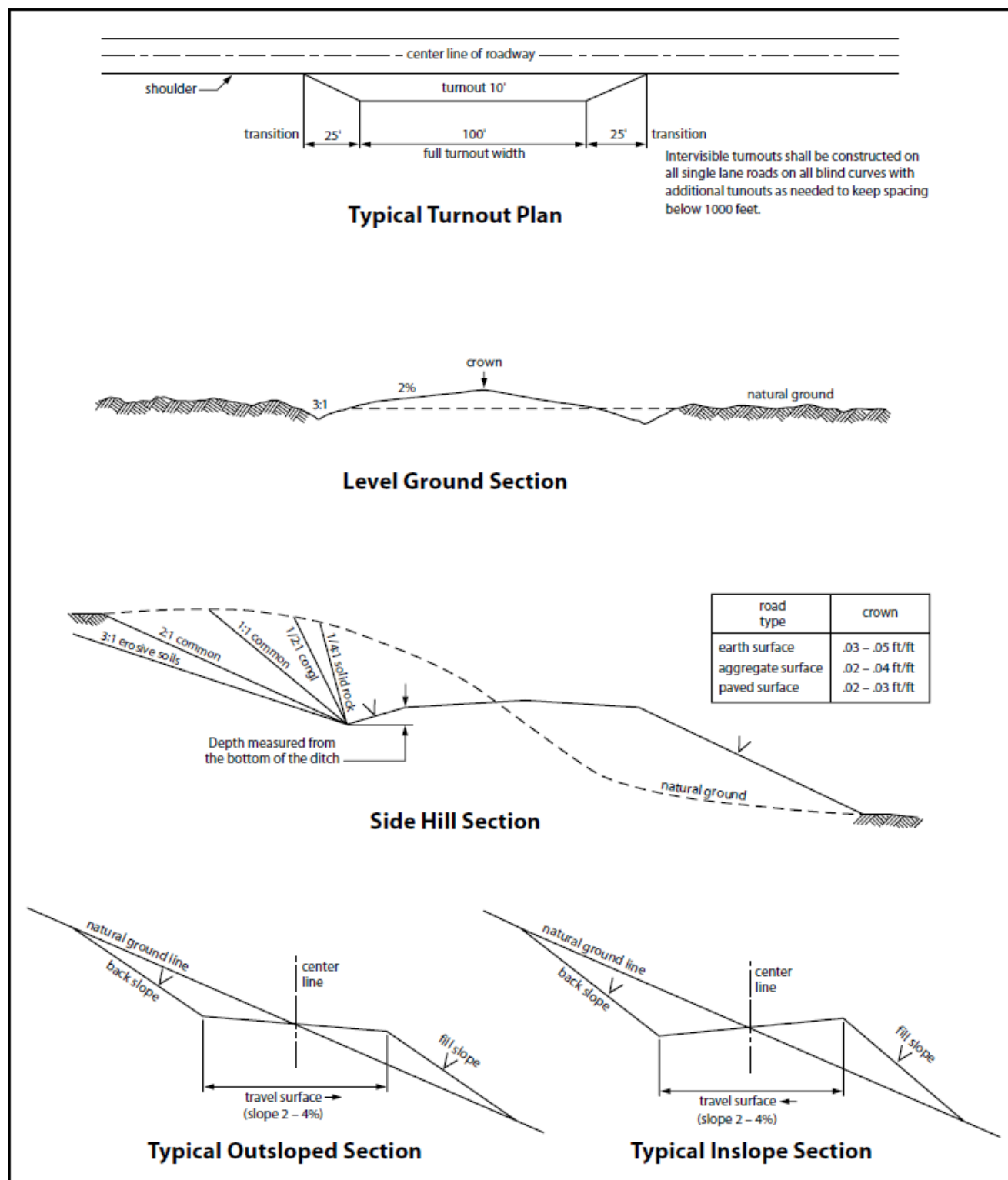


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, siting valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C.

9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

☐ Seed Mixture 1

☒ Seed Mixture 2

☐ Seed Mixture 2/LPC

☐ Seed Mixture 3

☐ Seed Mixture 4

☐ Seed Mixture Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 17 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

17. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

18. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

19. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

20. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter

enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (see 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing
 - (2) Earth-disturbing and earth-moving work
 - (3) Blasting
 - (4) Vandalism and sabotage;

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of 30 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the

surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 6 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 16 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

16. The holder is hereby obligated to comply with procedures established in the Native American

Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

17. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

18. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

19. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

C. ELECTRIC LINES

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
- No further construction will be done until clearance has been issued by the Authorized Officer.
- Special restoration stipulations or realignment may be required.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-

way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 11 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

11. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

12. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

13. Special Stipulations:

For reclamation remove poles, lines, transformer, etc. and dispose of properly.
Fill in any holes from the poles removed.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species

	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Franklin Mountain Energy LLC
LEASE NO.:	NMNM12280
LOCATION:	Section 2, T.26 S., R.35 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Tatanka Fed Com 103H
SURFACE HOLE FOOTAGE:	20'N & 1875'E
BOTTOM HOLE FOOTAGE:	150'S & 1877'E

WELL NAME & NO.:	Tatanka Fed Com 104H
SURFACE HOLE FOOTAGE:	20'N & 1850'E
BOTTOM HOLE FOOTAGE:	150'S & 380'E

WELL NAME & NO.:	Tatanka Fed Com 503H
SURFACE HOLE FOOTAGE:	20'N & 1925'E
BOTTOM HOLE FOOTAGE:	150'S & 1877'E

WELL NAME & NO.:	Tatanka Fed Com 504H
SURFACE HOLE FOOTAGE:	20'N & 1900'E
BOTTOM HOLE FOOTAGE:	150'S & 380'E

COA

H2S	☒ Yes	☐ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Cave/Karst Potential	☐ Critical		
Variance	☒ None	☐ Flex Hose	☐ Other
Wellhead	☐ Conventional	☐ Multibowl	☒ Both
Other	☒ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Strawn** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **1110 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
- b. Second stage above DV tool:
 - Cement to surface. If cement does not circulate, contact the appropriate BLM office.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1.

Option 1:

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi**.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7 5/8** inch intermediate casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.

- d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

District I

1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 88335

CONDITIONS

Operator: Franklin Mountain Energy LLC 44 Cook Street Denver, CO 80206	OGRID: 373910
	Action Number: 88335
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	3/16/2022
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	3/16/2022
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	3/16/2022
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	3/16/2022